ARGUMENT COMPOSITION AND THE LEXICON: LEXICAL AND PERIPHRASTIC CAUSATIVES IN KOREAN

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By
Elizabeth Owen Bratt
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I certify that I have read this dissertation and that in my opinion it is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Peter Sells
(Principal Advisor)

I certify that I have read this dissertation and that in my opinion it is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Ivan A. Sag

I certify that I have read this dissertation and that in my opinion it is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Thomas Wasow

I certify that I have read this dissertation and that in my opinion it is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Young-mee Yu Cho
(Rutgers University)

Approved for the University Committee on Graduate Studies:

Abstract

This thesis explores the properties of Korean lexical and periphrastic causatives as a key to issues of constituent structure, case marking, complementation, and the organization of the grammar into the lexicon and syntactic structure. The analysis, set within the framework of Head-Driven Phrase Structure Grammar, treats both forms of causative as syntactically monoclausal and semantically biclausal. Argument composition resolves the challenge that monoclausal periphrastic causatives present to a monotonic syntax by lexically specifying how the causative auxiliary can inherit arguments from the causativized verb.

Constituent structure properties demonstrate the relation of the inherited arguments to the inheriting head, with original and inherited arguments occurring linearly intermixed, and alternating case forms on the inherited arguments reflecting the agentivity of their inheriting head, rather than their lexical, semantic head. Constituent structure also shapes grammatical possibilities, with subject honorification, plural copy, and negation possibilities all differing between lexical and periphrastic causatives simply because the lexical causatives do not provide a separate lower verb for suffixes or particles to attach to, while the periphrastic causative verbal complex does allow the causative auxiliary and the lower causativized verb to be singled out individually.

Causatives, by separating semantic heads from constituent structure heads, tease apart the often coincident characteristics of case marked elements. This separation demonstrates that items lexically marked with underspecified grammatical case receive full specification as nominative or accusative when the Case Principles apply to their constituent structure realizations. Semantically case-marked items generally

only require semantic compatibility with the verb they modify, but locatives inherited through argument composition additionally require the appropriate alternating form for the verb which heads their phrase in syntax.

The syntactic and semantic representations intermediate between fully biclausal and fully monoclausal can be seen as steps in a grammaticalization process over time. The lexical causatives re-order the obliqueness of their arguments to fit the most normal obliqueness for verbs; lexical causatives share a delimiter and spatial and temporal location between causation and caused relation; and periphrastic causatives occur in verbal complexes functioning as single verbs, thereby directly reflecting their complex predicatehood.

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Abbreviations

Glosses

The following abbreviations are used in the word-by-word glosses for examples in languages other than English.

Acc accusative case

Adj adjectival suffix

Adv adverbializer

Caus causative (suffix)

Clasf numeral classifier

Cmp complementizer (suffix)

Com comitative

Conj conjunction (suffix)

Dat dative case

Dec declarative mood

DecAbr abbreviated form of declarative mood

Dir directional (suffix)

End sentential ending

Fut future tense

Gen genitive

HDat honorific dative case

HNom honorific nominative case

Hon honorific (suffix)

Hon.word a suppletive honorific form of a word

Imp imperative

Int interrogative

Inst instrumental

Loc locative (a gloss which covers both stative and non-stative forms)

Loc.NonStat nonstative form of the locative

Loc.Stat stative form of the locative

Neg negation particle

NegAux negative auxiliary

Nom nominative case

NonStat non-stative (suffix)

ObjHon object honorific auxiliary

PasAux passive auxiliary

PasCausAux passive-of-causative auxiliary

PasCmp passive complementizer

Pass lexical passive (suffix)

Plur plural

Pres present tense

ProgAux progressive auxiliary

Propos propositive

Pst past tense

PstMod past tense suffix for a verb in modifier form

Ques question marker

Quot quotative (suffix)

SHon subject honorific (suffix)

Stat stative (suffix)

Top topic marker

A period between words indicates a morpho-syntactic boundary in one language which is not indicated in the other. Examples: the monomorphemic verb stem *eps* in Korean is glossed as "not.exist", and the verbal noun plus light verb sequence *seltuk.ha* in Korean is glossed as "persuade" in English. I attempt with this convention to make fine-grained morpho-syntactic distinctions available for those who know Korean, and to avoid confusion through too many irrelevant details for those who do not.

HPSG abbreviations

The following abbreviations are used in HPSG signs in the thesis. Explanations of HPSG features may be found in the Introduction to HPSG in Section 3.1 or in Pollard and Sag (1994).

A-INDEX agreement-index

ADDIT-DELIMITER additional-delimiter

AG-PR-SIS agentive-predicate-sister

AGR agreement

ARG argument

ARG-S argument structure

BACKGRD background

C-INDICES contextual-indices

CAT category

COMP-DTRS complement daughters list

COMPS (non-subject) complements

CONT content

CTXT context

DTRS daughters

FIN finite

HD head

LEX lexical

LOC local

LOCT location

LP linear precedence

MOD modified

NFORM noun form

NUM number

PHCOMPS phonological subcategorization for complements

PHFORM phonological form

PHON phonology

Q quantifier

REF-PT reference point

REFER-PT reference point

REFERENCE-PT reference point

RELN semantic relation

SOA-ARG state-of-affairs argument

SUBCAT subcategorization list

SUBJ subject list

SUBJ-DTR subject daughter list

SYNSEM syntax-semantics

SYSM synsem

VFORM verbal form

$\oplus$ indicates the combination of two lists into a single list containing the elements of the original two lists

$\backslash$ occurs after a numeral tag identifying information which is unified, separating it from an exceptional feature within that information which is *not* unified

: indicates CONTENT information is following CAT information within an abbreviation

Romanization of Korean

In this thesis, I have adopted modified Yale Romanization, as this romanization appears to be most common in syntactic work. This romanization form reflects a direct translitteration of the Korean morpho-phonemic Hangul alphabet. Thus, the romanized spelling will not always provide a direct phonological representation of the word in question, as it shows the relationship between morphemes in different words rather than showing the effects of phonological assimilations and other processes. The Yale romanization system uses only characters from the Roman alphabet, and uses certain combinations of two letters to represent single sounds, such as doubled letters to represent the tense consonant series.

In the table below, I provide correspondences between the Yale romanization system, the phonetic alphabet of the International Phonetics Association (IPA), the Korean Hangul alphabet, and the Buffalo system of romanization used in much work on Korean (e.g., Gerdts 1986, 1990).

Yale	IPA	Hangul	Buffalo	Yale	IPA	Hangul	Buffalo
p	p		p	i	i		i
ph	p^h		ph	wi	wi		wi
pp	p’		pp	ey	e		ey
t	t		t	yey	ye		yey
th	t^h		th	wey	we		wey
tt	t’		tt	oy	we		oy
s	s		s	ay	ϵ		ae
ss	s’		ss	yay	yϵ		yae
c	tʃ		c	way	wϵ		wae
ch	$tʃ^h$		ch	u	ɨ		+
cc	tʃ’		cc	e	ə		e
k	k		k	ye	yə		ye
kh	k^h		kh	we	wə		we
kk	k’		kk	a	a		a
m	m		m	ya	ya		ya
n	n		n	wa	wa		wa
-ng	ŋ		-ng	wu	u		u
l	l		l	yu	yu		yu
h	h		h	o	o		o
				yo	yo		yo
				uy	ɨi		+y

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Chapter 1

Linguistic Theory and Korean Causatives

Following in the long tradition of examining causatives as a means of illuminating verb structure, this thesis explores the properties of Korean lexical and periphrastic causatives as a key to issues of constituent structure, case marking, complementation, and the organization of the grammar into lexicon and syntactic structure. Because Korean has both lexical causatives, as in (1), and periphrastic causatives, as in (2), it is a language ideally suited to such an examination.

(1) Nay-ka ai-eykey pap-ul **mek-i-ess-ta**
I-Nom child-Dat rice-Acc eat-Caus-Pst-Dec
'I made the child eat rice.'

(2) Nay-ka ai-eykey pap-ul **mek-key hay-ss-ta**
I-Nom child-Dat rice-Acc eat-Adv do-Pst-Dec
'I made the child eat rice.'

The analysis is set within the framework of Head-Driven Phrase Structure Grammar (HPSG), making use of the framework's architecture and general linguistic assumptions, while extending and developing certain areas of the theory to cover the Korean data. My account, in which both forms of causative are syntactically monoclausal and semantically biclausal, also explains the various contrasts between the causatives as reflected in their differing behavior with respect to passive, negation, directness of causation, time adverbials, and subject honorification. Central to this analysis is my use of argument composition in HPSG to explain how the periphrastic causative can syntactically combine a lower verb and the causative auxiliary in a verbal complex which functions as a single verb.

In the course of establishing the analysis of Korean causatives, my thesis also makes theoretical claims concerning the nature of case marking and provides specific HPSG accounts of many phenomena, such as Korean free word ordering, several Korean passive constructions and both forms of Korean negation, to add to the growing body of cross-linguistic studies in the HPSG framework.

This chapter will first set the context of how causatives have previously featured in linguistic theory and provide a short sketch of some typological properties of the Korean language. With this background, I will review the major issues which earlier accounts of Korean causatives have concentrated on, and provide an outline of the entire thesis.

1.1 Causatives in Linguistic Theory

Causatives have long been of interest to syntactic theory because they, like other complex predicates, test the limits of what it is to be a clause. The lower verb and the causative verb each contribute their own syntactic and semantic features, such as their subcategorized arguments, their semantic relation, and their background context, to a unified whole complex predicate. In simple clauses, properties such as case marking and subjecthood can be seen as related to structural characteristics of the clause or to semantic characteristics of the verb, and clause boundaries in constituent structure neatly coincide with divisions between the bordering clauses' arguments and their semantic content. Causatives bring two sets of all verbal properties together into a single clause, and let us examine precisely what role a structural clause plays and what role each individual predicate plays in determining these syntactic and semantic properties.

Because the analysis of causatives involves the analysis of so many properties of verbs, clauses, and arguments, causatives have been an important area of study for any syntactic framework, and a testing ground for the foundations of its architecture. In this section, I give a very brief overview of the kinds of syntactic levels, structures, and postulations which various syntactic theories have used to explain the behavior of causatives, concluding with approaches in HPSG, and placing this study within the long tradition of rigorous examination of a theory by application of its postulations to the properties of causative constructions.

In older transformational grammar, causatives were seen as involving a biclausal Deep Structure, with the causative verb and the lower verb each in their own separate clause, and a monoclausal Surface Structure, in which the verbs joined together, through a mechanism such as Aissen's (1979) Verb Raising. Semantic factors were expressed in the Deep Structure, such as relating the causee argument to the agent of the lower verb by representing it as the lower verb's Deep Structure subject. The Surface Structure expressed monoclausal characteristics, such as the similarities in case marking between the arguments of causatives and ordinary transitive verbs. The additional levels in Government-Binding Theory allow more distinctions to be made, such as Baker's (1988:200–204) account of Romance causatives as involving Abstract Verb Incorporation or Reanalysis at LF, in contrast to morphologically combined causatives of other languages, which involve Verb Incorporation in S-structure.

In Relational Grammar, causatives are treated as resulting from Clause Union, in which two separate clauses at an early derivational stratum collapse to form a single clause at a union stratum, with the re-valuing of certain Grammatical Relations, and certain Grammatical Relations being placed en chômage. Davies and C. Rosen (1988) propose treating Clause Unions as resulting from a new Predicate putting the earlier Predicate en chômage at the union stratum, rather than representing the original stratum as biclausal.

Lexical Functional Grammar has emphasized the lack of a necessary connection between grammatical functions and the constituent structure in which they occur. In accordance with this idea, Ishikawa (1985) analyzes Japanese causatives as monoclausal in constituent-structure, but biclausal in functional-structure.

Recent work in Government-Binding Theory has made use of argument structure to model the properties of causatives and other complex predicates, rather than exclusively relying on successive levels of transformationally-related constituent structures (Grimshaw and Mester 1988, S. Rosen 1989). The semantic information about predicates creates a Lexical Conceptual Structure, from which an argument structure is derived, consisting of a hierarchical list of arguments, ordered according to the thematic hierarchy. Argument structure is then mapped into a syntactic constituent structure. S. Rosen (1989) uses merger at the argument structure level to explain the distribution of biclausal and monoclausal properties of Romance causatives, and other complex predicates.

Argument structure has also been the locus of causatives' particular identity in recent work in Lexical Functional Grammar. T. Mohanan (1990) uses a hierarchically ordered argument structure derived from a richer semantic structure as the basis for analyzing Malayalam and Hindi causatives as adding a causer to the semantic structure, with concomitant increases in valency at argument structure or association of the new semantic entity with an existing argument. Matsumoto (1992) distinguishes the productive Japanese morphological causatives from the nonproductive lexical causatives by analyzing the former as biclausal in argument structure, and the latter as monoclausal in argument structure. Of the causatives which are biclausal in argument structure, Matsumoto analyzes some as biclausal at functional structure, and others as functionally monoclausal. Alsina (1993, 1996) further develops argument structure, distinguishing Proto-Agents and Proto-Patients within argument structure, and separating thematically higher arguments from lower ones by means of the thematic partition. Alsina uses Predicate Composition of the causative morpheme's argument structure with the argument structure of its complement verb to analyze causatives in Bantu and in Romance.

In all of these examples, causatives interact with the most fundamental parts of each theory's architecture. Causatives require a theory to indicate how a verb in a simple sentence is related to the same verb in a causative, whether this verb bears a causative affix or is a complement of a causative verb; as well as requiring this theory to represent the causee's relationship with each of the higher and the lower verbs. The boundary between the two clauses must be related to other clause boundaries, but permit necessary linkages. The extent of the interaction between the verbs must be accounted for, such as which verbal properties are distinct in a causative, how the properties of the two verbs may jointly determine the causative properties, and whether the verbs combine lexically, syntactically, or some other way provided by the grammar. Causatives bring together basic theoretical components, and the representation each theory gives for these components must be compatible with and determinative of the causatives' complete complex representation.

In HPSG, Hinrichs and Nakazawa (1989, 1990), Miller (1991:241), Monachesi (1993), and Rentier (1994) all adopt argument composition as a means of representing causative formation from distinct lexical items in syntax. In argument composition, the higher verb inherits the unsatisfied arguments of the lower verb as part of a valence list.[1] I know of no competing HPSG approach to syntactic causative formation, and I intend to pursue this same approach in this thesis. The challenge for me, as for any research on causatives, is to fit the complex facts of the interaction of the two verbs and their arguments into a set of principles and representations which elegantly fit simple sentences as well as they fit this particular complex area, in hope of shedding light on the correct formulation of those fundamental principles and representations.[2]

[1]Argument composition resembles Nishida's (1990) categorial grammar analysis of Spanish causatives and other clitic climbing verbs. In this analysis, the lexical rule of Division shifts the type of clitic climbing verbs from verbs which take a nonfinite clausal complement, a type expressed as Px/Pnf, to verbs which take a V^0 and inherit the arguments of that V^0, a new type expressed as $(Px/Z)^0/(Pnf/Z)^0$.

[2]Manning and Sag (1995) explore the distinct properties and effects of the Pollard and Sag (1994) valence lists SUBJ and COMPS compared with the argument structure list ARG-S, including a discussion of how causatives in Inuit, Japanese, Chi-Mwi:ni, French, and Turkish show distinct passivization, binding, causee selection, and case marking facts, based on differences in how the causatives combine the SUBJ, COMPS, and ARG-S lists. I will not include an ARG-S list in my analysis, but I believe that adopting an ARG-S list would be compatible with the analysis described in this thesis.

1.2 Introduction to Korean

Korean provides a rich range of causative data for syntactic theory, in part because it has both lexical and periphrastic causatives, allowing the factorization of properties into lexical and syntactic origin. Korean is generally assumed to be related to Japanese in the Altaic family; Korean syntax has many similarities to Japanese syntax, but Korean and Japanese phonology and native lexical items differ substantially. Both Korean and Japanese have many verbal nouns borrowed from Chinese (e.g. *kongpwu* 'study' in Korean and *benkyoo* 'study' in Japanese), which function as nouns when used separately, and as verbs when used together with the verb 'do' (*ha-ta* in Korean and *su-ru* in Japanese).

Korean is a head-final language with complex morphology. Thus, nouns bear suffixes for case and for discourse functions such as topicalization or emphasis. There is an optional plural marker for nouns, and number is not reflected on verbs. Verbs bear suffixes for information such as subject honorification, tense, politeness and formality in speech level, and declarative, interrogative, or imperative mood. Also, clausal and verbal coordinators, as well as clausal complementizers, take the form of suffixes on the clause-final verb.

Other distinguishing characteristics of Korean include the possibility for any NP argument not to be overtly realized, if it is understood from context, and the existence of long distance anaphora. The canonical word order in Korean is Subject-Object-Verb, though other word orders are generally possible, with the restriction that the head must be final. Certain other restrictions apply in particular constructions such as the fixed order of a Focus nominative phrase before the subject, and the usual ordering of more general adjuncts before more specific ones.

In addition to the causative auxiliary *ha-ta*, Korean has many auxiliary verbs, expressing semantic and aspectual features such as negation, *anh-ta*; passive, *ci-ta*; progressive, *iss-ta*; desiderative, *siph-ta*; inchoative, *ci-ta*; benefactive, *cwu-ta*; intention, *ha-ta*; obligation, *ha-ta*; completion, *peli-ta*; excessive activity, *ssah-ta*; and preparatory activity, *noh-ta*.

1.3 Theoretical Issues in Korean Causatives

In this section, I bring the topics of the previous sections closer together in an examination of the theoretical issues running through the literature on Korean causatives in particular. These issues frame all the particular questions I will examine throughout the thesis, and different analyses of Korean causatives reflect different views on these matters. I group the theoretical issues into three categories: clausality and constituent structure, case marking and structure, and lexical vs. periphrastic causatives.

1.3.1 Clausality and Constituent Structure

The particular challenge causatives provide to linguistic theory results from their simultaneous monoclausal and biclausal properties. The different positions of different syntactic frameworks on the role of constituent structure lead to different possible accounts of causatives, and different problems for these accounts. The theoretical relevance of the surface, final constituent structure varies, and thus certain constituent structure facts to be explored in this thesis will have different relevance to alternate accounts, depending on the positions taken therein. Particular areas in which different theories have varied concern the relationship of the verb and the clause, the subject and the clause, and which properties are definitely linked to constituent structure.

Korean causatives would not raise these questions of clausality and constituent structure if they took a more standard, purely biclausal or purely monoclausal form. Some other languages, such as English, productively express causation with a biclausal structure,[3] similar to ordinary Equi control sentences, while monoclausal causative

[3]I am using the term "biclausal structure" here to describe a construction in which one verb subcategorizes for a complete clause or for a VP, and in which the semantic CONTENT of that embedded clause or VP is an argument in the semantic CONTENT of the higher verb. This is a biclausal structure in the sense that understanding the properties of the construction requires reference to two clauses, the higher clause and the embedded clause (or VP). However, the higher verb will be responsible for defining how the lower verb's clause (or VP) is syntactically and semantically embedded in the higher clause. In this notion of biclausal, I am treating embedded VP's as equivalent to embedded S's, because both involve a distinct verbal head combining with its own arguments. It would be possible to distinguish sentences with embedded VP's from sentences with embedded S's by calling those with embedded VP's "sesquiclausal" and those with embedded S's "biclausal", but the properties of both kinds of sentences are similar enough that I prefer using the more familiar

sentences are headed by verbs which are lexicalized versions of certain kinds of causation, such as *kill* expressing a semantic variant of *cause to die*. Thus, the default assumption for Korean would be that its periphrastic causatives involve a straightforward biclausal structure, while the lexical causatives involve a straightforward monoclausal structure. Evidence that Korean causatives cannot fit into these clear-cut structures indicates, however, that we need to consider other conceptions of clausality.

One theoretical basis for determining clausality is the simple presence of verbs in a sentence, with each verb corresponding to its own clause. Under this conception, the existence of Korean causatives containing two verbs and yet demonstrating certain monoclausal characteristics would provide a challenge. The Verb Raising transformation addressed the possibility of having two verbs which had originally corresponded to two clauses, but occurred together in a single clause at surface structure. With the adoption of the Projection Principle in Government Binding Theory, the movement of one verb out of the structure where it assigned thematic roles to its complements could no longer be posited, and thus a verb was required to occur in its own clause in this theory. In a theoretical variation loosening the correlation of one verb with one clause, Baker (1988) adapts the Government Binding assumptions to allow movement of an X^0 into a governing Y^0, so that he can use Verb Incorporation to explain causatives with a biclausal structure involving a trace for the lower verb. Relational Grammar has always accepted two verbs occurring in a single clause as a necessary consequence of Clause Union, though older Relational Grammar treated the lower verb as an initial complement of the higher verb, and as bearing the Union relation after Clause Union, while Davies and Rosen (1988) revise the treatment of the two verbs in the clause so that the causative verb, as the final Predicate, puts the lower verb, i.e. the initial Predicate, en chômage. Thus the existence of two verbs within a single clause brings up theoretical issues of the relationship between the verbs and between each verb and its own arguments, issues on which theories have changed their views over time. For a theory such as HPSG, in which verbs head clauses and determine their structure, the existence of two verbs in a single clause raises questions

term "biclausal" for both.

concerning which verb heads the sentence and how the normal information specified by the non-head verb is reflected in the rest of the sentence. This thesis will discuss several kinds of evidence indicating that the two verbs in Korean periphrastic causatives occur in a single clause, and thus theoretically, the status of one clause with two verbs will also be addressed in detail.

Another approach to distinguishing the number of clauses in a sentence in some theoretical outlooks relies on the number of subjects. The fact that a subject and a verb are the natural minimum elements of a clause leads to the choice of a subject as fundamental to a clause. Thus, a number of examinations of the clausality of causatives concentrate on tests of subjecthood and correlate subjecthood with clausehood. However, taking a specific realization of the subject in constituent structure as a definitive member of a clause is more problematic, as addressed in transformational grammar with Equi and Raising transformations resulting in a matrix clause realization of a lower clause subject. The treatment of subjects of embedded clauses varies from framework to framework, with some analyses, such as Y. Kim (1990a) placing accusative causees in Korean in a lower clause, while others, such as O'Grady (1991), place accusative causees in the matrix clause, separate from a lower clause. Even the use of a verbal complex for the two verbs in a causative does not completely theoretically determine the position of an accusative causee: Y. Kang (1986) places the accusative causee in the matrix clause, while Y. Lee (1988) places it in a lower clause, even though both analyze the combination of verbs as the formation of a verbal complex.

For every theoretical position, the fundamental question posed by causatives is which properties reflect which aspects of clausality. Any analysis of causatives needs to attempt to divide properties consistently so that they can be identified with the appropriate biclausal or monoclausal structures, levels, or other representations of clausality. One of the goals of this thesis is to demonstrate how the HPSG valence lists, lexical entries, phrase structure schemata, and other relevant features to clausality appropriately divide up the properties seen in Korean causatives so that all biclausal aspects are appropriately captured, while the constituent structure remains completely monoclausal.

1.3.2 Case Marking and Structure

Case marking is central to many analyses of Korean causatives, with constituent structure directly determinative of case marking in some analyses, such as that of O'Grady (1991). Other analyses, such as that of Gerdts (1986, 1990), use the same constituent structure for all possible case markings in the causative, i.e., nominative, dative and accusative, with the difference in case marking reflecting grammatical relations but not constituent structure. Analyzing nominative and accusative cases as closely related, with a close tie between constituent structure and case marking, leads some, such as Y. Kim (1990a) and Y. Lee (1988), to posit one structure for causatives with either nominative or accusative causees, and a different structure for causatives with dative causees. I will argue in this thesis that Korean causatives involve a biclausal structure when the causee is nominative and a monoclausal, verbal complex structure when the causee is either dative or accusative. The close relationship between case marking and constituent structure in many theories means that analyses involving case marking in these theories can be rigorously tested against other properties of constituent structure. I will argue against several analyses of Korean causatives which attempt to derive the case marking of the causee from constituent structures I will demonstrate to be incorrect. Using case marking data from a variety of Korean constructions, I will argue for case marking in HPSG to be determined largely in the lexical entries of verbs, but for grammatical case marking to reach its full specification only in interacting with constituent structure.

1.3.3 Lexical vs. Periphrastic Causatives

The existence of both lexical and periphrastic causatives in Korean sparked interest in comparisons between the two in earlier transformational analyses such as Patterson (1974), though later work has tended not to engage in the same kind of contrastive analysis, with lexical causatives much less frequently analyzed. Much of the earlier concern with comparison focussed on whether the two types of causatives had the same semantics, and thus the same underlying structure. With the disappearance of complex transformations from generative linguistics, one form of causatives could not be derived from the other, and thus this interest waned.

While lexical causatives are more clearly monoclausal, with biclausal properties apparent mainly in semantics, the comparison of lexical and periphrastic causatives is still an interesting topic in two respects. First, because both forms of causative are semantically biclausal, the subtle semantic differences between lexical and periphrastic causatives, including certain semantic restrictions on the content of lexical causatives, give us a window onto which semantic factors group together and how an accurate, explanatory, more complex semantic representation might be designed in HPSG. And second, the comparison of lexical and periphrastic causatives allows us to explore issues of the theoretical status of the lexicon compared with the syntax. Theories such as HPSG and Lexical Functional Grammar which subscribe to the Strong Lexicalist Hypothesis, or the essentially equivalent Lexical Integrity Hypothesis (Bresnan and Mchombo 1995), were founded on the assumption that all relation changing phenomena occur in the lexicon rather than in the syntax. This assumption went hand in hand with the monotonic view of syntax, where information could always be added to any syntactic representation, but never changed or deleted. However, the Korean periphrastic causative facts point to the conclusion, parallel to the conclusion regarding Romance causatives in Alsina (1993, 1996), that causative formation must be permitted to occur in the syntax, and that syntactic causative formation can still be consistent with monotonicity in syntax.

1.3.4 Conclusion and Goals of the Thesis

My thesis thus aims to set forth data for all theories considering the relationship of constituent structure and clausality, the nature of the relationship of verbs and clauses, case marking and constituent structure, and the nature of the distinction between lexical and syntactic properties. A further aim is to present specific HPSG analyses pertinent to all these areas, showing that HPSG is a fully developed theory able to account for these diverse concerns, and giving specific details and proposals so that further work within HPSG may elaborate on and refine these proposals. Finally, this thesis aims to provide new data to the field of Korean linguistics in many areas, and to argue for the superiority of a particular analysis of the Korean lexical and periphrastic causatives.

1.4 Summary of Thesis

I now turn to a more detailed summary of the data, arguments, and issues addressed in my thesis.

Chapter 2 sets forth the basis of my thesis by establishing the monoclausal constituent structure of the periphrastic causative, in order to distinguish the causative from the standard biclausal Equi and Raising constructions. The structure of the periphrastic causative directly reflects its complex predicatehood in a verbal complex constituent formed by the lower verb and the causative auxiliary. Evidence for the monoclausal verbal complex structure comes from three areas: the free ordering of elements from both predicates, case alternations on adverbials, and negative scope.

Each of these types of evidence reflects a different aspect of the monoclausal verbal complex structure. The free ordering of arguments and adjuncts from either the lower verb or the causative auxiliary reflects the lack of a clause boundary separating a lower clause from a higher clause.

Adverbial case marking signifies that the higher verb functions as the only clausal head in some respects. Optional case marking on adverbial elements in Korean takes alternate forms depending roughly on the stativity of the verb heading the clause in which they occur. In the periphrastic causative, adverbials can only bear the form corresponding to the causative verb, regardless of whether they modify the higher or lower verb. Thus, adverbials modifying the lower verb treat the causative auxiliary as their head for case marking purposes, rather than treating the verb they modify as head of a lower clause.

From the negative scope evidence, we see the constituency of the verbal complex containing the lower verb and the causative auxiliary, in addition to the lack of a clausal boundary between the lower verb and the causative auxiliary.

For purposes of future research, I also outline a fourth potential area of evidence. The Korean phonological phrasing literature has posited certain phonological effects dependent on elements occurring within a VP constituent. If the periphrastic causative is monoclausal, it should only have a single VP constituent, but if it has a biclausal Raising or Equi structure, it should have a second VP constituent headed by the lower verb. My Korean consultants did not exhibit the phonological effects of VP in non-causative sentences, so I outline the possible arguments here in order to make my hypotheses available for testing.

After establishing the syntactic monoclausality of the periphrastic causative in Chapter 2, Chapter 3 completes the evidence that both the lexical and periphrastic causatives are syntactically monoclausal, while semantically biclausal, and provides a detailed HPSG analysis of the causative facts.

To account for the free word ordering within Korean clauses, I parameterize the basic phrase structure Schemata that Pollard and Sag (1994) propose for English in order to permit languages to allow non-subject arguments to be satisfied either within VP, or sister to VP. For the verbal complex structure, I propose an additional Schema, which allows a single lexical head, rather than a phrase, to function as the complement of a lexical head. These Schemata permit the structures seen in the causative, while argument composition brings about the characteristic causative exhibition of both biclausal and monoclausal properties. In a strict sense, argument composition describes the inheritance of the lower verb's subcategorized elements by the higher verb.

I relate the biclausal adverbial modification possibilities for both lexical and periphrastic causatives to a nested semantic CONTENT, involving the causer, causee, and an *influence* state-of-affairs argument on the higher level, and the lower verb's regular semantic RELATION embedded within the state-of-affairs argument. The linking of the time and place of the causation and the caused action for the lexical, but not the periphrastic, causative results in the greater sense of directness ascribed to lexical causatives.

Negation also distinguishes lexical and periphrastic causatives, in that periphrastic causatives allow for the independent placement of long and short form negatives on each of the lower verb and the causative auxiliary, while lexical causatives do not permit negative particles or verbs to occur inside the lexical string of the verb. My

HPSG analysis for Korean negatives combines with my structures for the lexical and periphrastic causatives to make this result clear. Theoretically, we see that the lexical or syntactic structure of a causative can thus directly influence the possible range of modifications of a causative sentence.

Chapter 4 presents a central part of my account: Korean case marking in HPSG. Not only the correct case marking for basic causative sentences, but also the interaction of case with relation-changing operations such as passive make an explicit account of case critical to any analysis of the causative. My account draws a fundamental distinction between grammatical case, which is specified by Case Principles in the syntax as an argument combines with the head subcategorizing for it, and semantic case, which is not directly specified, but rather relies on compatibility between the meaning of a semantic case marker lexically added to a noun and the meaning of the subcategorizing verb. Evidence for this distinction comes from alternations of the grammatical cases of nominative and accusative reflecting different syntactic structures formed of identical lexical items, and also from Korean case stacking, in which both grammatical and semantic case are borne simultaneously by a single noun.

After presenting the basic components of my account in Chapters 3 and 4, I address the challenges raised in the literature for monoclausal analyses of the periphrastic causative in Chapter 5, and compare my analysis with previous ones. Certain evidence strongly supports a monoclausal analysis, such as the fact that speakers with a strict restriction that the anaphor *cakicasin* take its antecedent within the clause do permit *cakicasin* as a lower object to take the causer as its antecedent.

Many areas of data which have been raised as problems for monoclausal analyses can be easily accounted for due to the rich and principled factorization of clausal and head properties in HPSG. Thus, subject honorification allows the honorification of both causer and causee in the periphrastic causative, because the subject honorification suffix can attach lexically to each verb. In the lexical causative, subject honorification can only honor the causer, but not the causee, because the lexical causative suffix can only attach to a small set of simple verb stems, and the addition of the subject honorification suffix to the lower verb stem would produce a stem which is ineligible for the lexical causative. Plural copy, in which the verb bears a plural marker in agreement with a plural subject, similarly can reflect the plurality of either verb in the periphrastic causative, but only the causative verb in the lexical causative. The ability of periphrastic, but not lexical, causatives to have conflicting time adverbs within the sentence is related to the difference in directness of causation described earlier.

More serious challenges to a monoclausal analysis of periphrastic causatives require more detailed and precisely argued responses, which my thesis provides. I demonstrate that the contrast in passive between periphrastic and lexical causatives results not from a difference in clausality, but rather from different obliqueness orderings on their COMPLEMENTS lists, reflecting the fact that the lexical causatives are more highly grammaticalized than the periphrastic causatives. While object honorification data has been claimed to show that the lower object of the periphrastic causative is not part of the causative clause, I demonstrate that this argument actually rests on a flawed interpretation of the base data for comparison. Moreover, lexical causatives demonstrate the same object honorification behavior as periphrastic causatives. Data concerning nominative resumptive pronouns and floating quantifiers putatively in the lower subject position, in fact represents the underspecified grammatical case borne by an element coindexed for case with an argument which is never satisfied in the constituent structure. My position is supported by the availability of accusative as an equally suitable case for the resumptive pronouns and floating quantifiers, a totally unexpected fact under a biclausal causative account.

Chapter 6 concludes with an examination of the implications of this argument composition analysis for syntactic theory in general, stressing those syntactic and semantic properties and distinctions which will be crucial for any syntactic framework to incorporate. I review the predictions arising from my analyses of case marking, semantic clausality, passive, and floating quantifiers, and indicate areas for future research on causatives and related phenomena in Korean and in other languages.

Chapter 2

Constituent Structure

2.1 Introduction

This chapter addresses the crucial issue of the clausality of the periphrastic causative in Korean. To motivate deeper examination of this construction, it is necessary to establish that the analysis of the periphrastic causative cannot simply be assimilated to the more expected and ordinary types of biclausal structures. Demonstrating the periphrastic causative to be monoclausal leads to interesting questions regarding the relationship of the two verbs in the single clause, the relationship of the arguments contributed by each verb, and how this complex single clause interacts with relation-changing constructions such as passive.

I will begin this chapter by examining basic clause structure in Korean and reviewing the relevant monoclausal and biclausal structures against which the causatives will be measured. I then bring evidence to bear on the causatives' structure from scrambling, and adverbial case marking, as well as potential evidence from phonological phrasing in dialects other than my consultants'. After establishing the monoclausal structure of the periphrastic causative through these tests, I concentrate on the "verbal complex" constituent containing the two verbs of the construction, with negative scope facts and certain grammaticalizations of causatives providing additional evidence for my proposed structure.

2.2 Clause Structure in Korean

In this section I discuss the basic clause structure of Korean to set the background against which the causatives can be compared. I begin by briefly discussing the issue of the existence of VP in simple sentences, and continue with an examination of the structures of sentences with verbally-headed complements.

2.2.1 Existence of VP

The question of the existence of VP divides into two areas: whether a VP constituent is useful for describing the kind of complements verbs may take and whether a VP constituent appears to be present in clauses which do have a subject. Whether there are complements which should be described as VPs is directly relevant to possible analyses of the periphrastic causative, because these VP complements would provide possible parallel examples to causative complements, but the question of whether complete clauses have VPs would not provide any such critical comparison to causatives. Indirectly, the non-existence of a VP in ordinary clauses would make the existence of complement VPs more unusual, but not impossible. As a practical consideration, in order to present complete tree structures for various sentences throughout the chapter, I will need to adopt a working position on this question. I will review previous work on VP in complete clauses first, then move on to the question of VP complements.

2.2.1.1 Free Word Ordering

The issue of the existence of VP in Korean arises primarily due to free word order facts. All non-head items in a clause are generally freely ordered, which includes the possibility of the subject occurring between items which would be assumed to be part of VP. I will illustrate this with examples based on (3), which follows the canonical SOV order of Korean (Hong 1991b:47). In (3) and in the following examples, the subject, *apeci-kkeyse* 'father-HNom', is boldfaced for ease of discussion of its position.

(3) **Apeci-kkeyse** atul-eykey ton-ul cwu-si-ess-ta
father-HNom son-Dat money-Acc give-Hon-Pst-Dec
'The father gave the son money.'

In (3), the subject *apeci-kkeyse* 'father-HNom' occurs outside of a possible VP constituent, which would consist of the indirect object *atul-eykey* 'son-Dat', the direct object *ton-ul* 'money-Acc', and the verb *cwu-si-ess-ta* 'gave'. However, the subject may also occur in the midst of these elements (J. Cho and Morgan 1987), as seen in (4a), where it occurs between the indirect and direct objects, and in (4b), where it occurs between the direct object and the verb. Note also that the indirect and direct objects are also freely ordered with respect to each other, as seen in (4c), compared with (3). Here, and throughout the thesis, I use the term "scrambling" to refer descriptively to these kinds of free word order possibilities, and not to indicate any specific theoretical mechanism which actively produces these orderings.

(4) a. Atul-eykey **apeci-kkeyse** ton-ul cwu-si-ess-ta
son-Dat father-HNom money-Acc give-Hon-Pst-Dec
'The father gave the son money.'

b. Atul-eykey ton-ul **apeci-kkeyse** cwu-si-ess-ta
son-Dat money-Acc father-HNom give-Hon-Pst-Dec
'The father gave the son money.'

c. **Apeci-kkeyse** ton-ul atul-eykey cwu-si-ess-ta
father-HNom money-Acc son-Dat give-Hon-Pst-Dec
'The father gave the son money.'

Under the ordinary idea of a constituent comprising elements which linearly occur together with similar meaning in various related sentences, a VP constituent consisting of the two objects, *atul-eykey* 'son-Dat' and *ton-ul* 'money-Acc', and the verb, *cwu-si-ess-ta* 'gave', does not appear possible in sentences like (4a) and (4b). If the subject can freely split apart elements which should belong to the VP, according to the usual universal expectations, then positing a VP constituent creates more problems to explain, in terms of the structures of the sentences with discontinuous VPs, than the sentences it successfully predicts with canonical order.

Saito (1985) and Fukui (1986) address this very question for Japanese, which involves the same basic facts as outlined above for Korean. They review the various theoretical reasons for postulating a VP, which extend far beyond predicting word order. In Government-Binding theory, the existence of VP is required to describe binding theory facts and for assigning a theta role and case to the subject.

Another type of evidence which is not directly relevant to constituent ordering per se involves semantic distinctions between items internal to VP and external items. M. Kang (1988:16–20) argues that the VP-focus construction, as illustrated in (5),[1] allows the semantically focussed item to be any element within the bracketed VP, or the entire VP, but not the subject.

(5)	Chelswu-ka	[ku	chayk-ul	ilk-ki-nun]	hay-ss-ta
	Chelswu-Nom	that	book-Acc	read-Cmp-Top	do-Pst-Dec

‘Read the book, Chelswu did.’

While a complete analysis of this construction is outside the scope of this thesis, it appears that this kind of semantic focus is related more closely to semantic facts than to syntactic constituency. Even if we did limit ourselves to considering only syntactic explanations, the eligibility of only non-subject arguments for this kind of focus does not in itself support only a single constituent structure for these sentences. The data could be explained under different assumptions about constituency than Kang’s, such as if the lower VP is treated as a lower S with a null subject coreferent with the higher subject. In this structure, the lack of focus on the subject might be attributed to an inability to focus null items, combined with the plausible restrictions that the focus must fall in the lower clause, and that if nested clauses share a subject, the subject must be expressed in the higher of the clauses. While various constituent

[1] I include Kang’s English translation, although it does not sound like a natural English sentence to me. It may be more acceptable with more contextualization, or in other varieties of English than mine.

structures are consistent with the VP Focus facts, I would favor an analysis in which the meaning of the higher verb is treated as more relevant to the focus possibilities. It is also important to note that Kang (1988:17) cites Whitman (1982) as claiming that the analogous Japanese construction involves focus on the verb alone. I believe a careful definition of focus would be necessary in order to make clear the distinct semantic and syntactic correlates expected under competing analyses. Thus, I do not believe the VP-focus construction, at the level of understanding provided by Kang's data, provides support for the existence of VP in Korean.

C. Chung (1991, 1993, 1995), arguing against the existence of VP in Korean, cites various authors who have supported a VP in Korean and in Japanese, and their arguments for it. He discusses Kang (1985), who requires a VP for assigning case and Choe (1985), who requires a VP for Binding Theory. He also discusses the support given for VP in Japanese, including Gunji (1987), who argues that the existence of a VP in Japanese explains the fact that there is no passive of the lower object in a causative, as well as facts about coordination and about the pro-form *soo-su* 'do so'. Another argument for VP in Japanese comes from Sells (1990), who argues that the existence of VP explains certain coordination facts, as well as the non-scrambling of the multiple Nominative arguments of psych verbs. Chung disputes the judgments Sells gives in support of VP,[2] and concludes that without any positive evidence for VP, it is better, in the interests of a simpler theory, not to postulate such a constituent.

It is interesting to note, however, that the VP constituent proposed by Sells (1990) is a fundamentally different kind of VP. It does not necessarily include all of the

[2]The specific examples in question involve the coordination of complements to the Japanese benefactive auxiliary verb *moraw* in the examples given in (i).

(i) a. Taroo-wa Tanaka-ni [daidokoro-o soozi.si-te]$_{VP}$ [kaet-te]$_{VP}$ morat-ta
Taroo-Top Tanaka-Dat kitchen-Acc clean-and go.home-Cmp receive-Pst
'Taroo got Tanaka to clean the kitchen and go home.'

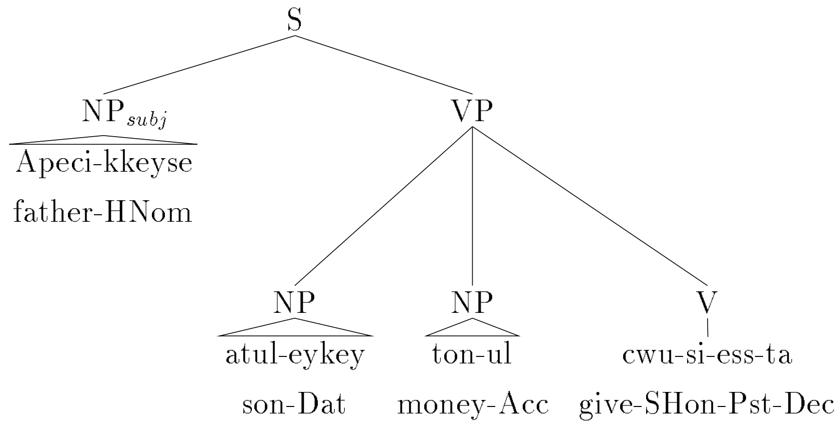
b. *Taroo-wa daidokoro-o Tanaka-ni [*t* soozi.si-te]$_{VP}$ [kaet-te]$_{VP}$ morat-ta
Taroo-Top kitchen-Acc Tanaka-Dat clean-and go.home-Cmp receive-Pst
'Taroo got Tanaka to clean the kitchen and go home.'

Sells (1990) argues that a VP with an NP gap and a VP without such a gap cannot be conjoined in (i-b) above, while Chung counters that Japanese speakers he has consulted find (i-b) grammatical, especially if the dative phrase *Tanaka-ni* is focussed on as new information.

verb's objects. It is defined as containing the verb, not containing the subject, and possibly containing other non-subject arguments.[3] Because the subject may not be the sole argument outside the VP, the subject and the VP do not have the same complementary relationship in syntax and semantics as under a more traditional conception of VP. Theoretically, it is harder to attribute special properties of the subject to a VP constituent containing only a subset of the non-subject arguments, compared with a VP which contains all non-subject elements, and is the sole sister of the subject. Thus, this VP constituent is not defined as a unit which could assign an external theta role, or provide Case for the argument external to it. Nor would this VP constituent account for binding theory facts. This VP constituent is defined on two absolutes, namely, containing the verb and not containing the subject, but it allows variation in what else might be contained in it in a way that the traditional VP does not.

Under this conception of VP, which I will adopt, the sentences which challenge a simple idea of VP can be given the following structures. (6) gives the structure for (3), whose words are included in the tree, as well as for (4c).

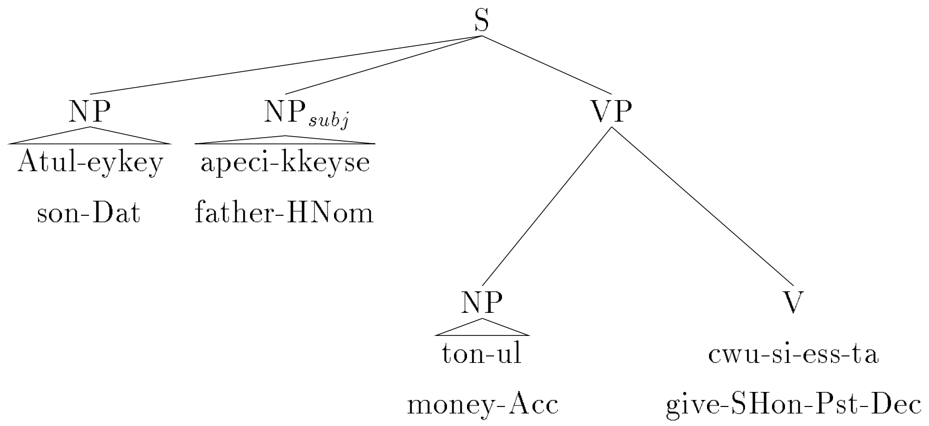
(6)



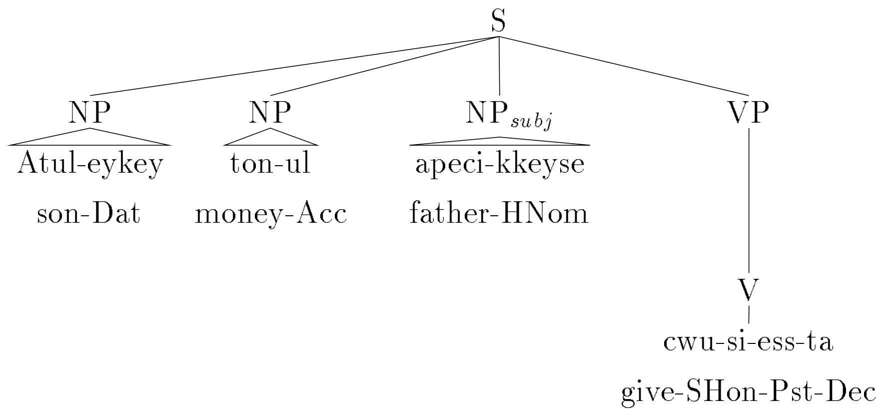
[3]In a thesis on scrambling and Japanese phrase structure, Yatabe (1991:23–25) refers to this model of clause structure as "the asymmetric ivy structure hypothesis", contrasting it with his own "symmetric ivy structure hypothesis", in which Japanese clauses may involve flat structures with subject or object in either order, or they may involve a constituent containing the verb and either the subject or object, with the other argument occurring outside this constituent. Yatabe thus considers subject and object to be completely equivalent in possible positions in clause structure.

(7) gives the structure for (4a), while (8) gives the structure for (4b). I assume that the subject is ordered last among the VP-external arguments, as a limitation on the number of possible structures corresponding to each string of words comprised by a grammatical sentence. This assumption will have interesting consequences in other areas of the grammar, because of the subject's particular status.

(7)



(8)



Thus, sentences with the subject occurring after an object are not in fact incompatible with a VP constituent, given this definition of VP. While we may not have clear and direct syntactic evidence for VP, research in Korean phonological phrasing has found that postulating a VP constituent explains certain phrasing contrasts. Without syntactic evidence against VP, phonological phrasing evidence for it can be sufficient to assume the existence of VP.

2.2.1.2 Phonological Support for VP

The rules of phonological phrasing have only recently become an area of study (Y. Cho 1987, 1990; Silva 1989, 1992), so their relevance for syntactic structure has not formed part of the traditional examination of the question of the existence of VP. However, Y. Cho (1990) presents phonological evidence for the existence of VP.

Korean phonological phrasing fits well with the Sells-type VP, which does not always contain all the traditional VP elements. In her work, Cho analyzes sentences with objects preceding subjects as having topicalized initial elements preceding a traditional VP, but the data are fully compatible with the alternate conception of VP.

The evidence comes from a contrast between subject and non-subject arguments in forming phonological phrases, as seen in the application or non-application of the rule of Obstruent Voicing. The Korean phoneme inventory does not use voicing contrastively, so the appearance of voiced versions of Korean's "plain" (i.e. not aspirated or glottalized) obstruents, namely /p/,/t/,/k/ and the palatal affricate /c/, between other voiced segments such as vowels or nasals, results from the rule Obstruent Voicing. This rule applies not only within words, but also across words within a phonological phrase. Cho's rule of Phonological Phrase Formation, given below in (9), gives a precise definition of a phonological phrase. Part (b) of the definition, which gives the effects of focus on phrasing, will not be relevant for this discussion.

(9) Apply the following rules cyclically to all maximal projections, proceeding from the bottom up. At any given stage (a) applies before (b). Let the maximal projection under consideration on a given cycle be M.

a. If M branches, combine the head of M into a phonological phrase with all adjacent unphrased material, up to and including the closest XP, or if no such phrase is present, the left edge of M.

b. Phrase any focused word with the next word, unless that word is already phrased.

After (a) and (b) have applied in all possible environments, (c) applies.

c. Unphrased words form phonological phrases of their own.

The relevant case for our purposes here is where the maximal projection "M" is headed by the verb. Since part (a) only applies to a branching constituent, this phrasing rule will not distinguish between an analysis of a VP node dominating a V alone, with no objects or modifiers, and an analysis in which there is simply a V, without a dominating VP node. To avoid this kind of indeterminate result, we can include an adverb modifying the verb. The presence of the adverb makes the verb's maximal projection necessarily branching, and ensures the application of part (a) of the phrasing rule within VP if VP does in fact exist.

Given that the verb's maximal projection branches, we look for it to form a phonological phrase with its adjacent XP, or to phrase with all material up to the left edge of the maximal projection. To determine whether or not VP exists, we are interested in the situation where the left edge of a postulated VP intervenes between the verb and its adjacent XP. In this situation, part (a) of the phrasing rule predicts that if VP exists, and an adverb precedes the verb so that the verb is dominated by a branching node, the left edge of the phonological phrase will coincide with the left edge of VP. Thus, the phonological phrase will not include a subject which occurs sister to VP. A non-subject argument in the same linear position as the subject is predicted to be included in a phonological phrase with the verb, since the left edge of VP will not intervene between this argument and the verb. If VP did not exist, we would not expect to see any contrast between subject and non-subject arguments in their phonological phrasing.

As Cho demonstrates, there is indeed an asymmetry between subject and non-subject arguments in their phonological phrasing, which follows exactly from the postulation of VP, in conjunction with Cho's Phonological Phrase Formation rule. Recall that the rule of Obstruent Voicing applies to plain obstruents between voiced segments, but only in the domain of phonological phrases. Thus, the presence of voicing on a plain obstruent indicates that the voiced segments responsible for its voicing form part of the same phonological phrase.

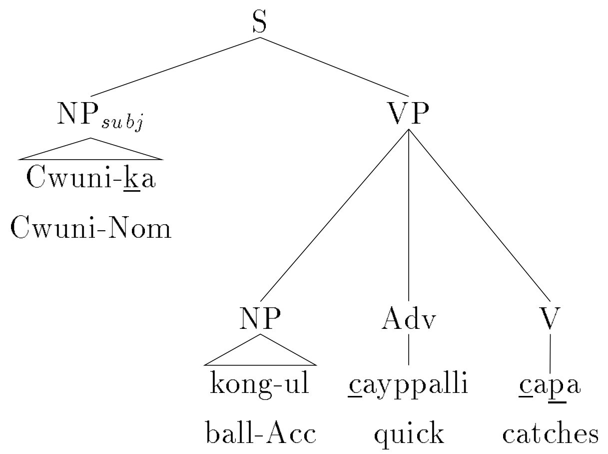
Cho (1990:61) gives the following examples to illustrate this subject/object asymmetry. I use square brackets to represent the phonological phrases and underlining to represent plain obstruents which are voiced due to Obstruent Voicing in the surface pronunciation of the sentence. The crucial contrast occurs in the first consonant of the adverb *cayppalli* 'quick', which is voiced when directly preceded by the object in (10a), and not voiced when directly preceded by the subject in (10b). This indicates that the (voiced) final /l/ of the object *kong-ul* 'ball-Acc' occurs within the same phonological phrase as the initial /c/ of *cayppalli* 'quick', and that the (voiced) final /a/ of the subject *Cwuni-ka* 'Cwuni-Nom' does not occur within the same phrase as the initial /c/ of *cayppalli* 'quick'

(10) a. [Cwuni-ka] [kong-ul cayppalli cap-a]
Cwuni-Nom ball-Acc quick catch-Pres
'Speaking of Cwuni, he catches balls quick.'

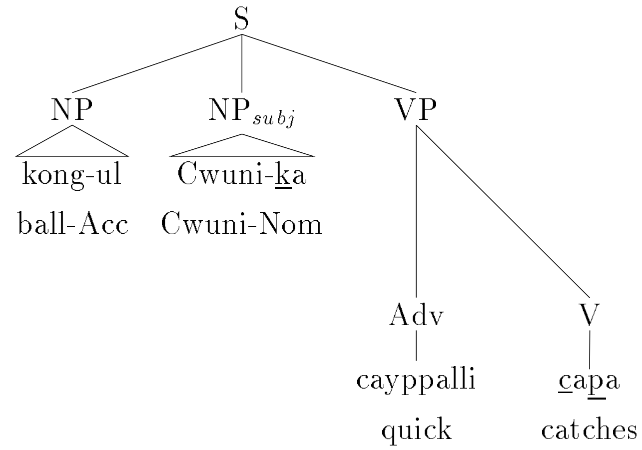
b. [Kong-ul] [Cwuni-ka] [cayppalli cap-a]
ball-Acc Cwuni-Nom quick catch-Pres
'Balls he catches quick.'

The trees in (11) illustrate the structural difference between the examples in (10).

(11) a.



b.



Silva (1989, 1991, 1992:75–78) describes further syntactic configurations where lax obstruents are voiced, including between a determiner and a noun, between an adjective and a noun, and between two conjoined verbs. He agrees for the most part with the facts presented by Cho (1990), listing "between an object and a verb" as an environment where a word-initial lax obstruent will voice, and listing "between a subject and a verb", "between a subject and an object" and "between two objects" as environments where voicing of word-initial lax obstruents is blocked.

Silva differs from Cho in not requiring an adverb before a verb in order to see a contrast between subjects and objects in phonological phrasing, stating that subjects will not phrase with verbs. Cho's position is that some sort of minimal phrase requirement would lead a verb immediately preceded by a subject to phrase with that subject.

Silva's (1992) phrasing algorithm is the following, relying on the ends of major phrases rather than identifying grammatical relations such as head, as in Cho's algorithm.

(12) Major Phrase (Φ): left, X^{max}

Prosodic Word (ω): left, X^{lex}

Minor Phrase Constraints (ϕ):

1. *Focus*: A minor phrase may contain at most one focus-accented and two unaccented prosodic words.

2. *Directionality*: In forming minor phrases, scan from left-to-right.

In Silva's system, the left edges of maximal phrases in NP's will prevent subjects from phrasing with objects, or objects with other objects. The left edge of VP will prevent subjects from phrasing with either an object or a verb at the left edge of VP. Since the left edge of VP will not intervene between an object immediately preceding a verb, this object will phrase together with the verb.

The main concern of this section is to demonstrate that the existence of VP has phonological effects, which syntactic accounts without VP would not be able to explain. The precise formulation of the phrasing algorithm is not as important to the syntactic issue as the nature of the syntactic elements needed to explain the phonological facts. Both Cho and Silva agree that VP is a necessary syntactic constituent for explaining phonological phrasing.

While I will accept Cho and Silva's position that the VP constituent influences certain aspects of phonological phrasing, I will also note that my own preliminary work on this question raises some doubts about the extent and nature of the influence.

All of Cho's and Silva's evidence comes from simple sentences, in which the structural distinction of occurring either within or outside of VP is not separated from any other possible distinctions between subject and object. In a brief experiment involving three Korean speakers reading four examples of each type of sentence at different speech rates, I attempted to separate these different concepts. I compared objects which are within VP to objects which are at a different level of structure from the relevant VP by comparing simple sentences, such as (13), to sentences with a matrix object and an embedded complement VP, such as (14). The underlined letters indicate the critical word-initial stop and the surrounding voiced sounds which provide the environment for phrase-internal plain obstruent voicing.

(13)	Komo-ka	[kocong.sachon-u<u>l</u>	<u>ka</u>kkum	cay-wu-ess-ta]
	aunt-Nom	cousin-Acc	sometimes	put.to.sleep-Pst-Dec
	'My aunt put my cousin to sleep sometimes.'			

(14) Komo-ka kocong.sachon-ul [kakkum kitali-key] kangyo.hay-ss-ta
aunt-Nom cousin-Acc sometimes wait-Adv force-Pst-Dec
'My aunt forced my cousin to wait sometimes.'

In addition, I considered sentences containing a scrambled matrix subject preceding an embedded VP, such as (15).

(15) Kocong.sachon-ul komo-nun [kakkum ka-lilako] kitay.ha-n-ta
cousin-Acc aunt-Top sometimes go-Cmp expect-Pres-Dec
'My aunt expects my cousin to go sometimes.

To analyze the voicing of the relevant stops more precisely than by purely impressionistic means, I adopted the instrumental measures set forth by Silva (1992), including percentage voicing during stop closure, and length of time between stop release and onset of vowel voicing.

Instrumental data confirmed that for word-initial stops in "uncontroversial" positions, phrase-internal stops (eg. the initial /k/ in *kitali-* 'wait' in (14)) have a greater degree of voicing than stops at phrase edge (eg. the initial /k/ in *kocong.sachon* 'cousin' in (14)). However, I found no real voicing differences between objects within VP (as in (13)) and matrix objects outside the VP (as in (14). Surprisingly, I also found no difference in voicing between scrambled matrix subjects before embedded VP (as in (15) and matrix objects in that position (as in (14)).

To decide the extent to which phonological phrasing supports the existence of VP, larger-scale studies, involving both controlled laboratory reading and recordings of speech in natural environments, would be necessary for a more certain determination. As some researchers have found this effect, and simple sentences support this effect, it is at least a potential advantage of a theory to be able to explain it.

Thus, for properties of phonological phrasing, the postulation of a VP could explain a subject/object asymmetry. The postulation of a VP allows for a constrained phonological phrasing rule, which sees only the constituent structure of the phrases, and does not have direct access to the grammatical relations of those phrases. Without a VP, the rule would need to directly specify the different behavior of subjects, which leads to an undesirable model of the phonology-syntax interface.

2.2.1.3 Conclusion: Existence of VP

The role of constituent structure in the theoretical framework underlying any analysis will be the most important factor in deciding on whether Korean clauses have VP constituents. The free ordering of the subject among the other arguments preceding the verb means that a VP constituent is superficially implausible. Demonstrating consequences of the VP's existence in areas other than simply the normal sentence ordering can overcome this implausibility, so theories such as Government-Binding theory which rely on the VP for binding theory and case theory will want to posit a VP. In theories where those kinds of generalizations do not directly follow from the constituent structure, then the evidence for VP is weaker.

The phonological phrasing facts require one to decide whether to permit phonological rules to rely on grammatical relations or to postulate a VP. The former alternative appears to be undesirable for the model of the grammar, and the latter alternative, with no such theoretical drawback, gives Korean a clause structure similar to many other languages and thus definitely available in universal grammar. Furthermore, if Korean is postulated to have VP complements as possible subcategorized elements, the presence of those same VP structures within a clause makes VP less of a defective, restricted kind of projection.

Thus, it seems that postulating a VP for Korean can explain some phonological facts in a desirable way, and gives Korean a similar clause structure to many other languages. I will thus represent the constituent structures of Korean clauses with VP nodes present. The question remains as to the position of the non-subject arguments which occur to the left of the subject, whether they occur as sisters to the subject or in a special topicalized position. I will choose to represent them as sisters to the subject in the interests of a simpler structure.

2.2.2 Biclausal Structure

Every language will have structures involving clausal complements, but it is less clear whether every language also needs to have VP complements. If Korean has both S and VP complements, there should be evidence distinguishing the two kinds of structures. VP complements should lack an expressed subject.

I will first discuss which verbs are likely to take S complements, and which verbs to take VP complements, then discuss evidence bearing on the two possible ways that sentences with apparent VP complements might be categorized as having S complements instead. I will argue against both of these positions: first, against these sentences having accusative or dative-marked lower subjects, and second, against these sentences having phonologically null lower subjects.

2.2.2.1 Finding Likely VP complements

Although syntactic tests are necessary to establish what kind of complements a verb takes, semantic properties yield probable subcategorization information for that verb. I adopt the position of Pollard and Sag (1994:105), who state "Our own view of these matters is essentially that of Grimshaw (1979), namely that semantic selection must work hand in hand with syntactic subcategorization, in particular category selection, to explain the complex dependencies that particular lexical items exhibit."

A verb which semantically involves a proposition as a whole with no special relation of the verb to any participant in the proposition is likely to take an S complement. Examples of this kind of verb would be *mal.ha-ta* 'say', *poko.ha-ta* 'report', and *ipcung.ha-ta* 'verify'.

Some verbs have the same semantic characteristic of not assigning particular roles to participants in a proposition selected by the verb, but they take a VP complement in expression of the proposition, instead of an S complement. Raising verbs belong to this category, including subject-to-subject raising verbs such as the English[4] verbs 'appear' and 'seem', and subject-to-object raising verbs such as *mit-ta* 'believe'. We can see that the semantics alone does not predict precisely one structure for a verb by the frequent possibility of the same verb occurring with either an S complement or a VP complement, in English and Korean, as seen below in the Korean examples, as well as in the English translations.

[4]The Korean verbs *po-ta* and *siph-ta*, which have the meaning of 'seem' or 'appear', do not take VP complements. Their "verbal complex" structure will be discussed later in this chapter.

(16) a. Nay-ka [ku chayk-i i-mwuncey-ey kwanlyen-i iss-tako]
I-Nom that book-Nom this-problem-Dat relevance-Nom exist-Cmp
mit-nun-ta
believe-Pres-Dec
'I believe [that the book is relevant to this problem].'

b. Nay-ka ku chayk-ul [i-mwuncey-ey kwanlyen-i iss-tako]
I-Nom that book-Acc this-problem-Dat relevance-Nom exist-Cmp
mit-nun-ta
believe-Pres-Dec
'I believe the book [to be relevant to this problem].'

On the issue of the extent to which semantics determines syntactic expression, Pollard and Sag (1994:105–108) provide many examples of how possible syntactic subcategorizations vary between verbs of very similar semantics. Thus, semantics will be an initial guide for finding appropriate verbs, but syntactic tests must confirm their subcategorizations.

With these cautions in mind, the kind of semantics which would be likely to occur with a VP complement-taking verb involves a proposition and a participant in that proposition which is particularly affected by the higher verb. Sag and Pollard (1991) and Pollard and Sag (1994) distinguish three types describing this semantic situation: the *influence* type, with verbs such as *order* and *permit*, the *commitment* type, with verbs such as *promise*, and the *orientation* type, with verbs such as *want* and *hope*.

These types differ in whether the participant in the lower proposition which is particularly related to the higher verb is the subject or the object of the higher verb, according to the semantic properties of the situation. When the higher verb describes an *influence* type situation, then that verb's object is being influenced to do the action described by the lower verb, i.e., is coreferential with the lower verb's (possibly unexpressed) subject. When the higher verb describes a *commitment* or *orientation* type situation, the higher verb's subject will be the one who, because of the commitment to or reflection upon the action, performs the action described by the lower verb, i.e. the lower verb's (possibly unexpressed) subject. The type which will be most relevant for the causative is the *influence* type, as causation and permission are strong forms of influence.

Although the semantic properties of these verbs are sufficient, as argued by Sag and Pollard (1991), to determine which matrix item semantically controls the lower subject, they are not sufficient to determine the syntactic form of the lower complement. The lower complement could be realized as a VP complement, an S complement, or even an NP complement. By surface appearances at least, English and Korean appear to have all three of these possibilities. Korean examples involving the verb *amsi.ha-ta* 'suggest' are given below.

(17) a. John-i Mary-eykey ka-lako amsi.hay-ss-ta
John-Nom Mary-Dat go-Cmp suggest-Pst-Dec
'John suggested going, to Mary.' [VP]

b. John-i Mary-eykey [Bill-i o-l-kes]-ilako amsi.hay-ss-ta
John-Nom Mary-Dat Bill-Nom come-Fut-thing-Cmp suggest-Pst-Dec
'John suggested to Mary that Bill would come.' [S]

c. John-i salam-tul-eykey cencayng-ul amsi.hay-ss-ta
John-Nom person-Plur-Dat war-Acc suggest-Pst-Dec
'John suggested a war to the people.' [NP]

The issue of this section is whether Korean allows VP's as a possible complement type. With semantics giving us a set of verbs which are likely to take VP complements, we can move on to considering how we could syntactically ascertain the complement structure in these sentences. A class of sentences we can suspect of being VP complement sentences, with similar semantics and surface syntactic expression to causatives, have a matrix verb of the *influence* type, and have a dative or accusative NP object coreferent with the lower subject.

(18) Ku-ka wuli-tul-eykey [ku sasil-**ul** yu.uy.ha-lako] yochong.hay-ss-ta
he-Nom us-Plur-Dat that fact-Acc pay.attention-Cmp request-Pst-Dec
'He requested us to pay attention to the fact.'

Raising sentences, with an accusative matrix object coreferential with an unexpressed lower subject, are superficially similar in syntactic expression, with some differences in properties noted in the literature from Equi sentences. I will include them also in the examination of potential VP complement sentences.

(19) Nay-ka ku ai-**lul** [sulkilop-tako] mit-nun-ta
I-Nom that child-Acc wise-Cmp believe-Pres-Dec
'I believe the child is wise.'

If these Equi and Raising sentences, with dative and accusative matrix objects, did not involve VP complements, there would be two possible ways for them to involve S complements instead. The first way would be for the dative or accusative NP to actually be the lower subject, instead of merely coreferent with it. The second way would be for that NP to be a matrix object, but for there to be a null lower subject present. I will now move on to looking at these alternatives to the VP complement analysis and arguing against them.

2.2.2.2 Against the Matrix Objects as Lower Subjects

The first alternative analysis I examine involves taking the dative or accusative matrix object as being in fact the lower clause's subject, so that sentences like (18) and (19) involve an S complement in place of the matrix object and VP complement assumed in the bracketing of those examples.

My arguments against this analysis are that the case marking of the NP in question makes it more closely related to the higher verb than to the lower verb, and that the scrambling behavior of these sentences cannot be explained by an S complement analysis. I examine these arguments in more detail below.

2.2.2.2.1 Case Marking from Higher Verb If our goal is to relate the case marking of the dative or accusative argument in sentences such as (18) and (19) to more general properties of Korean case marking, the most natural analysis involves the higher verb determining the case borne by these arguments. Korean has no accusative subjects in simple sentences, and the Korean dialects which do have dative subjects limit them to a particular semantic class, including psych verbs such as *kulip-ta* 'to miss'. In particular, the lower verb *yu.uy.ha-lako* 'pay attention' in (18) does not take a dative subject in simple sentences, nor does the lower verb *sulkilop-tako* 'be wise' in (19) take an accusative subject in simple sentences. The higher verbs in these examples, *yochong.hay-ss-ta* 'requested' and *mit-nun-ta* 'believe', do have similarly case-marked objects in sentences with other lower verbs. Thus, simple correlation with comparable examples implies that the higher verb is responsible for the case marking, not the lower verb. Languages with quirky case provide more striking examples of the origin of case marking on a particular argument, but Korean has no quirky case.

Semantically, the correlation between the higher verb and the case marking of the argument in question is natural. Raising verbs involve accusative objects, not dative objects, as dative case would reflect a more active, volitional participant, while accusative case tends to be associated more with a participant whose will or thought is not considered relevant. Raising verbs of believing or considering do not require any volition from the person or object considered, so accusative case is appropriate. For Equi verbs, an emphasis on the volition or independence of the object accords with the dative case assigned. If the accusative or dative case assignment resulted from the lower clause, the semantic emphasis on the volition and the awareness of the lower subject would be reflected only in embedded clauses, overriding the normal considerations giving the subject nominative case. This appears to be an unmotivated, unusual division of properties.

In light of these distributional and semantic facts, the analysis in which the dative and accusative objects belong to a lower clause appears implausible. The main reason for considering these arguments as belonging to the lower clause has been to permit this kind of complement to be a complete S for purposes of the Projection Principle within Government-Binding Theory. Exceptional Case Marking could penetrate the lower clause of a Raising sentence to assign case to the lower subject, so that every verb would have a realized subject.

In HPSG, there is no form of case marking extending into complement clauses. If a verb subcategorizes for a sentential complement, it will not be able to specify any information about the arguments of that lower sentence, because if this S complement internally satisfies its arguments, the arguments are no longer visible as discrete arguments on the valence lists. Thus, adding an equivalent principle to Exceptional Case Marking would broadly open up a previously restrictive area of HPSG theory. Without strong motivation for such a move, we would not want to consider it. Postal and Pullum (1988:666) question whether case marking across clausal boundaries has ever been attested independently of sentences which would be candidates for a Raising-to-Object analysis, arguing that the lack of independent evidence, such as case marking by the verb or INFL of the subject NP inside a sentential subject in some language, makes Exceptional Case Marking an unmotivated theoretical construct.

Thus, the case marking of these dative and accusative elements in Korean is much more closely tied to the higher verb than to the lower verb, and it is natural and in accordance with the rest of Korean grammar and our theory to attribute this to these elements being arguments of the higher verb.

2.2.2.2.2 Scrambling as Matrix Objects We now turn to the question of whether there are restrictions on the ordering of elements in scrambled sentences which could provide a means for distinguishing between S and VP complements. The most commonly adopted constraint on scrambling is that it is limited to elements of a single clause, so that items in embedded constituents will not appear in a matrix clause. This claim is disputed, and I examine the arguments for and against it in the next section. After concluding that I will adopt this constraint on scrambling, I turn to specific data regarding a difference between S and VP complements.

The NPs in question have scrambling behavior like matrix objects, not matrix subjects.

2.2.2.2.3 Scrambling Reflects Clause Structure The question of whether scrambling is clause-bounded has been debated in work on Korean, and also more extensively on Japanese. There are instances of items occurring outside their clauses; the debate centers on whether these instances should be accounted for in the same way as free word ordering within clauses.

Y. Lee (1993:5) describes various accounts reaching different conclusions on this question in different languages, relying on anaphor binding and weak crossover as their main diagnostics. She cites Mahajan's (1990) work on Hindi and Saito's (1992) work on Japanese as arguing that local scrambling differs from long distance scrambling. Conversely, she cites Hoffman and Turan (1991) and Frank et al. (1992) as arguing that local and long distance scrambling are a single phenomenon in Turkish, Korean and German. Lee treats these differences as reflecting parametric differences between languages, and argues for a single unbounded scrambling phenomenon in Korean, based on anaphora facts. To me, these facts are not conclusive because they discount any role for linear precedence, when scrambling often disrupts the linear precedence of elements.

The position I adopt, that clause-bounded scrambling and long-distance scrambling are distinct and should be treated differently, is essentially the position Gunji (1987:214–220) and Yatabe (1991:72) take with respect to scrambling in Japanese. I also follow J. Cho and Morgan (1987), who maintain that Korean scrambling is clause-bounded.

I believe that so-called "Long-Distance Scrambling" is a fundamentally different phenomenon than clause-internal scrambling. Clause-internal scrambling does involve some sort of change of emphasis on the elements in non-canonical positions, but "long-distance scrambling" appears to be more limited to particular kinds of focus. In particular, the examples of long-distance scrambling appear to involve the kinds of elements which would naturally be semantically focused through topicalization, such as question words. Furthermore, these elements appear initially, which would also be natural for topics.[5] I give three representative examples of long-distance scrambling from Y. Lee (1991) below, with an argument question word, and adjunct question word, and a PP which could be taken as a topic for the entire sentence.[6] This kind of sentence would occur in this account the same way long-distance arguments are generally satisfied—through topicalization.

[5]This sense of topic would be distinct from the sense of topic meaning something marked with the "topic" case marker -*(n)un*.

[6]The traces in these examples may be taken purely as a notation describing the canonical position of the coindexed element.

(20) a. **Nwukwu-lul**$_i$ ne-nun [Younghee-ka t_i nolaki-ess-nunci]
who-Acc you-Top Younghee-Nom surprise-Pst-whether
a-ni
know-Ques
lit. 'Who do you know whether Younghee surprised?'

b. **Way**$_i$ ne-nun [t_i Chelswu-ka hwa-lul nay-ss-nunci]
Why you-Top Chelswu-Nom anger-Acc exposed-whether
a-ni
know-Ques
'Do you know why Chelswu got angry?'

c. **Kimalsihem-eyse**$_i$ na-nun [Chelswu-ka t_i iltung.ha-tolok] ku-lul
final.exams-on I-Top Chelswu-Nom ranks.first-so.that he-Acc
too-ass-ta
helped
'I helped Chelswu so that he got the best score on the final exams.'

The purely leftward movement of the scrambled elements, often to sentence-initial position, in Lee's examples follows from GB-internal argumentation, resulting in a predominance of examples which appear analyzable as fronting due to topicalization. However, Y. Lee (1993) also includes examples which involve several lower clause items appearing before the matrix subject, as in (21b). (21a) gives the canonical sentence ordering.

(21) a. Na-nun [Swuni-ka Yuli-eykey chayk han-kwen-ul
I-Top Swuni-Nom Yuli-Dat book one-Clasf-Acc
senmwul.hay-ss-ta-ko] sayngkak.ha-n-ta
gift.do-Pst-Dec-Cmp think.Pres-Dec
'I think Swuni gave a book to Yuli as a present.'

b. Yuli-eykey chayk han-kwen-ul na-nun [Swuni-ka
Yuli-Dat book one-Clasf-Acc I-Top Swuni-Nom

senmwul.hay-ss-ta-ko] sayngkak.ha-n-ta
gift.do-Pst-Dec-Cmp think.Pres-Dec
'I think Swuni gave a book to Yuli as a present.'

Thus, the explanation for the whole range of long-distance scrambling examples will be more complex than a simple fronting of one topicalized item, and will most likely permit multiple topicalizations under certain circumstances.

Still, in my own work, the clause-internal hypothesis seems to give the best overall fit to the data, and the availability of topicalization within the grammar permits the additional sentences to be generated when there is semantic motivation for them. Many speakers find scrambling sentences particularly confusing to judge, thus making progress in the analysis of scrambling difficult.

In keeping with their more specific semantic function, "long-distance scrambling" appears to be much more limited than clause-internal scrambling in how widely it can apply. In my data collection, clause-internal scrambling has always been accepted by my native Korean consultants, whereas I found it difficult or impossible to produce acceptable long-distance scrambling examples.

When items were not fronted, the contrast between clause-internal scrambling, as in (22b), and "long-distance scrambling" as in (22c), was even stronger. These examples should definitely involve an S complement on semantic grounds and case marking grounds, since the lower verb describes an event in which none of the participants are coreferent with matrix elements, and the subject of the lower verb is marked nominative.

(22) a. Halmeni-kkeyse ai-eykey [apeci-kkeyse atul-eykey **ton-ul**
grandmother-HNom child-Dat father-HNom son-Dat money-Acc
cwu-si-ess-ta-ko] malssum.ha-si-ess-ta
give-Hon-Pst-Dec-Quot say-Hon-Pst-Dec
'The grandmother said to the child that the father gave the son money.'

b. Halmeni-kkeyse ai-eykey [**ton-ul** atul-eykey apeci-kkeyse
grandmother-HNom child-Dat money-Acc son-Dat father-HNom

cwu-si-ess-ta-ko] malssum.ha-si-ess-ta
give-Hon-Pst-Dec-Quot say-Hon-Pst-Dec
'The grandmother said to the child that the father gave the son money.'

c. *Halmeni-kkeyse **ton-ul** ai-eykey [apeci-kkeyse atul-eykey
grandmother-HNom money-Acc child-Dat father-HNom son-Dat
cwu-si-ess-ta-ko] malssum.ha-si-ess-ta
give-Hon-Pst-Dec-Quot say-Hon-Pst-Dec
'The grandmother said to the child that the father gave the son money.'

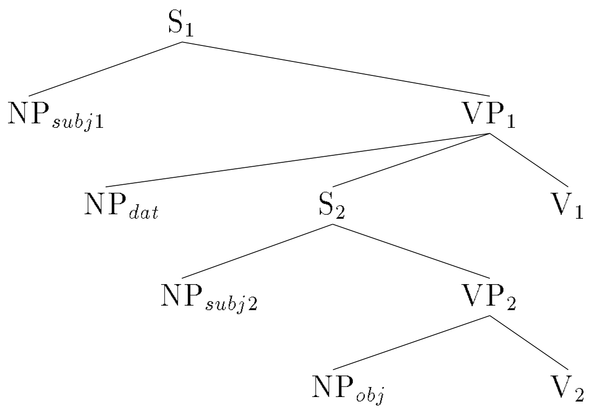
Since topicalization is already a widely-attested crosslinguistic phenomenon, which involves fronting items for semantic effect, I believe that "long distance" scrambling should be considered an instance of topicalization, and I will henceforth reserve the term scrambling for clause-internal free word ordering.

2.2.2.2.4 Scrambling of the Lower Subject Given the constraint that scrambling is clause-bounded, proposed VP complements should be distinguishable from S complements in the ordering possibilities for the subject of the lower verb. In a VP complement, the subject of the lower verb is not expressed as part of the lower clause headed by that verb. In an S complement, the lower subject is definitely part of the lower clause. This gives us the clear prediction that in VP complements, the lower subject should scramble freely among the matrix clause elements and not at all among the lower clause elements. For S complements, the prediction is reversed: the lower subject should not scramble at all among the matrix clause elements, and should scramble freely among the lower clause elements.

In this section, I give sets of examples showing first the canonical ordering and then one or more scrambled orderings. Since we are discussing the positioning of the lower subject, I boldface the relevant lower subject NP in each case to make the differences between the sentences more readily apparent. This does not indicate any theoretical claim about that particular NP's relation to scrambling as a process. For the purposes of clarity, I use square brackets to indicate the boundaries of the S and VP complements, located on the basis of evidence from this and previous sections.

(24) should involve an S complement due to its semantic content and the appearance of nominative marking on the lower subject. In much of the discussion of various verbally-headed complements, I will use the verb *mal.ha-ta* 'say' and its subject-honoring variant *malssum.ha-si-ta* 'say (Hon.)' as examples of verbs taking S complements. The tree in (23) gives the structure for the canonical ordering of (24).

(23) S complement: canonical order



In (24), we see that the lower subject *ai-ka* 'child-Nom' cannot be ordered before the indirect object of the matrix clause, *sensayngnim-kkey* 'teacher-Dat'. Nor can it be ordered before the matrix subject, *emeni-kkeyse* 'mother-HNom', or after the entire S complement, before the matrix verb *malssum.ha-si-ess-ta* 'said'.

(24) a. Emeni-kkeyse sensayngnim-kkey [**ai-ka** chayk-ul
mother-HNom teacher-Dat child-Nom book-Acc
ilk-ess-ta-ko] malssum.ha-si-ess-ta
read-Pst-Dec-Quot say-Hon-Pst-Dec
'The mother told the teacher that the child had read the book.'

b. *Emeni-kkeyse **ai-ka** sensayngnim-kkey [chayk-ul
mother-HNom child-Nom teacher-Dat book-Acc
ilk-ess-ta-ko] malssum.ha-si-ess-ta
read-Pst-Dec-Quot say-Hon-Pst-Dec
'The mother told the teacher that the child had read the book.'

c. *__Ai-ka__ emeni-kkeyse sensayngnim-kkey [chayk-ul
child-Nom mother-HNom teacher-Dat book-Acc
ilk-ess-ta-ko] malssum.ha-si-ess-ta
read-Pst-Dec-Quot say-Hon-Pst-Dec
'The mother told the teacher that the child had read the book.'

d. *Emeni-kkeyse sensayngnim-kkey [chayk-ul ilk-ess-ta-ko]
mother-HNom teacher-Dat book-Acc read-Pst-Dec-Quot
ai-ka malssum.ha-si-ess-ta
child-Nom say-Hon-Pst-Dec
'The mother told the teacher that the child had read the book.'

From these examples, it appears that the lower subject cannot be freely ordered with elements of the matrix clause, as predicted.[7] The lower subjects of S complements are predicted, instead, to scramble with their non-head clausemates within the S complement. (25) shows that this is possible, as expected.

(25) a. Emeni-kkeyse sensayngnim-kkey [**ai-ka** chayk-ul
mother-HNom teacher-Dat child-Nom book-Acc
ilk-ess-ta-ko] malssum.ha-si-ess-ta
read-Pst-Dec-Quot say-Hon-Pst-Dec
'The mother told the teacher that the child had read the book.'

b. Emeni-kkeyse sensayngnim-kkey [chayk-ul **ai-ka**
mother-HNom teacher-Dat book-Acc child-Nom

[7] Although I am simply setting aside the possibility of topicalizing elements out of one clause into another, a complete analysis could attempt to explain differences between the ungrammatical sentences in (24) and the topicalized sentences in (20) and (21), in order to make clear why the sentences in (24) are not grammatical due to topicalization. Some possible explanations for the unavailability of a topicalization analysis for these sentences might involve the cross-serial dependency necessary to analyze (24b) as topicalized, and the triple topicalization necessary to produce (24d). I will not propose here any definite account of when topicalization is not possible, leaving exploration of this issue to future work.

ilk-ess-ta-ko] malssum.ha-si-ess-ta
read-Pst-Dec-Quot say-Hon-Pst-Dec
'The mother told the teacher that the child had read the book.'

Thus for S complements, the constraint on scrambling being clause-bounded, together with the assumption that the lower subject belongs to the lower clause, predicts the correct range of data.[8] The lower subject does not scramble with matrix elements because it does not belong to the matrix clause. Within its own lower clause, it does scramble.

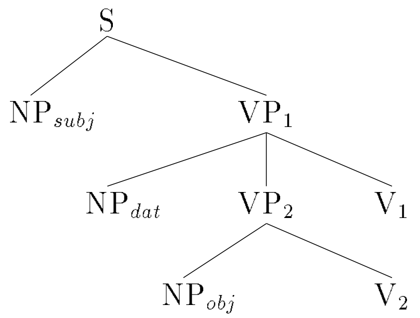
For VP complements, the expectation is reversed. The lower subject NP is considered a member of the matrix clause, which is merely coreferent with the unexpressed subject argument of the lower clause. Thus, the lower subject should scramble with elements of the matrix clause, and not with elements of the lower clause.

Since (27) involves a participant in the events which plays semantic roles in both the matrix and the lower clause, and since the NP representing this participant is not nominative-marked, it is a good candidate for a verb with a VP complement. In these examples, I will use the verb *cwungko.ha-ta* 'advise' (or *cwungko.ha-si-ta*, 'advise (Hon)' including the subject-honoring suffix *-si*) as an example of a verb taking a VP complement. Another such verb I will use in other examples is *seltuk.ha-ta* 'persuade'. In (27), I include a matrix adverb as the first element of the sentence, so that the scrambling in question is distinct from the fronting involved in topicalization. The corresponding sentences without the adverb have the same judgments.

The tree in (26) illustrates the canonical ordering for a VP complement sentence.

[8] Of course, the unavailability of topicalization for some sentences is not addressed by the combination of this constraint and this assumption, but the behavior of topicalization is a broad issue outside the scope of this thesis. If we uniformly set aside the possibility of topicalization, we are left with meaningful contrasts in scrambling behavior.

(26) VP complement: canonical order



(27) gives examples of the lower subject scrambling with other elements of the matrix clause. The lower subject *ai-eykey* 'child-Dat' can be ordered before the matrix subject *emeni-kkeyse* 'mother-HNom', and it can be ordered after the entire VP complement, before the matrix verb *chwungko.ha-si-ess-ta* 'advised'.

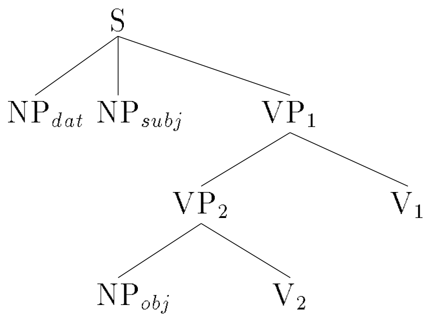
(27) a. Hyenmyeng.ha-key-to emeni-kkeyse **ai-eykey** [chayk-ul ilk-tolok]
cleverly mother-HNom child-Dat book-Acc read-Cmp
chwungko.ha-si-ess-ta
advise-Hon-Pst-Dec
'Cleverly, the mother advised the child to read the book.'

b. Hyenmyeng.ha-key-to **ai-eykey** emeni-kkeyse [chayk-ul ilk-tolok]
cleverly child-Dat mother-HNom book-Acc read-Cmp
chwungko.ha-si-ess-ta
advise-Hon-Pst-Dec
'Cleverly, the mother advised the child to read the book.'

c. Hyenmyeng.ha-key-to emeni-kkeyse [chayk-ul ilk-tolok] **ai-eykey**
cleverly mother-HNom book-Acc read-Cmp child-Dat
chwungko.ha-si-ess-ta
advise-Hon-Pst-Dec
'Cleverly, the mother advised the child to read the book.'

In (28), the first scrambled ordering of (27) appears.

(28) VP complement: scrambled order



In contrast to the facts just demonstrated above, it is impossible to order the lower subject among the elements of the VP complement.

(29) a. Hyenmyeng.ha-key-to emeni-kkeyse **ai-eykey** [chayk-ul ilk-tolok]
cleverly mother-HNom child-Dat book-Acc read-Cmp
chwungko.ha-si-ess-ta
advise-Hon-Pst-Dec
'Cleverly, the mother persuaded the child to read the book.'

b. *Hyenmyeng.ha-key-to emeni-kkeyse [chayk-ul **ai-eykey** ilk-tolok]
cleverly mother-HNom child-Dat book-Acc read-Cmp
chwungko.ha-si-ess-ta
advise-Hon-Pst-Dec
'Cleverly, the mother persuaded the child to read the book.'

The examples presented in this section clearly argue that the lower subject of an S complement belongs to the lower clause, and the lower subject of a VP complement belongs to the matrix clause. The scrambling test appears to give clear results for clausal constituency.

2.2.2.3 Against Null Lower Subjects

The second alternative analysis I will argue against is one in which the overt dative and accusative NP's belong to the higher clause, but phonologically null lower subjects exist in the lower clause, making them full clauses, and not VP's.

2.2.2.3.1 Need Overt Evidence for Null Elements In Government-Binding theory, there are theory-internal reasons for null elements, but without a theory-internal motivation, it would be very strange to have a null element which does not alternate with overt elements in some way. It is important to have evidence in order to postulate the existence of null elements. An analysis positing a null pronominal occurring in a position which could never take overt elements would be suspect.

This kind of alternation between an overt argument and a (proposed) null argument is similar to a less controversial analysis of simple sentences in Korean, where any argument which is clear from context need not be phonologically overt. In the examples illustrating this point below, (30a) and (31a) each give a sentence which provides background context. The boldfaced full NP argument in the (a) examples corresponds to the boldfaced pronoun in the (b) examples, and to the phonologically unexpressed argument in the (c) examples. (30b) and (31b) give a sentence with a pronoun filling one argument position, while (30c) and (31c) give a sentence in which the argument position filled by the pronoun in the (b) examples does not correspond to any phonological material at all. (30) shows that a subject may be phonologically unexpressed, and (31) shows that an object may also be phonologically unexpressed.

(30) a. **Swuni-ka** tases-kay kwuk-e-lul ha-n-ta
Swuni-Nom five-Clasf nation-language-Acc do-Pres-Dec
'Swuni can speak five languages.'

b. **Kunye-ka** acwu chicek-i-ta
she-Nom very intelligent-be-Pres
'She's very intelligent.'

c. Acwu chicek-i-ta
very intelligent-be-Pres
'She's very intelligent.'

(31) a. Na-nun **kwaca-lul** iceymak kwuw-ess-ta
I-Top cookie-Acc just.now bake-Pst-Dec
'I just made some cookies.'

b. Ese **han-kay** tu-si-cio
please one-Clasf take-Hon-Imp
'Please take one.'

c. Ese tu-si-cio
please take-Hon-Imp
'Please take one.'

Since Korean freely allows such arguments to be phonologically unexpressed, treating those arguments similarly to pronouns seems more appropriate than accounting for them as arguments no longer subcategorized for by the verb. Furthermore, nothing semantically indicates that the verb has changed in any way when it takes null arguments, as we might expect if it were the verb's subcategorization which had changed.[9]

Based on the possibility of either a pronoun or a phonologically unexpressed argument in simple sentences, with no change in the verb's subcategorization, various accounts have treated the possibility of pronouns appearing in complex sentences as a phenomenon revealing the fully specified structure of the corresponding sentences without pronouns. Usually the pronoun *ku* 'he' is used in the literature, though the reflexive pronoun *caki* 'self' and floated case-marked quantifiers also have been used in a parallel way.

2.2.2.3.2 Resumptive Pronouns as Lower Subjects In this particular instance, some analyses have argued that overt elements occur in the position under

[9]In Manning and Sag (1995), free pro-drop in Japanese is analyzed as a non-canonical relationship of the ARG-S list and the COMPS list. ARG-S, the abbreviated name for Argument Structure, contains the 'deep' subcategorization of arguments upon which binding theory is based, while COMPS contains arguments with phonologically overt realizations in constituent structure. Thus, pro-dropped arguments appear on the ARG-S list, but not on the COMPS list, due to a lexical rule of pro-drop. The type hierarchy of lexical signs will allow generalizations based on transitivity or intransitivity to continue to be expressed; the lexical type of a verb will not change from transitive to intransitive in the pro-drop rule, even if an object no longer appears on a COMPS list. Since under this analysis a sentence with a null argument has the same ARG-S and same transitivity type as a sentence with a full NP, adopting this analysis does not change the expectation that null arguments will alternate with full NPs in sentences differing only in the expression of this alternating argument.

consideration, as seen in examples like (32) (Y. Choi 1988:153). The pronominal lower subject *ku-ka* 'he-Nom' is boldfaced.

(32) ?Na-nun John$_i$-eykey [**ku**$_i$-ka kukes-ul ha-l kes-ul] myeng.hay-ss-ta
I-Top John-Dat he-Nom it-Acc do-Fut thing-Acc order-Pst-Dec
'I ordered John$_i$ that *he*$_i$ do it, and not anyone else.'

In accounts such as Choi's, the grammaticality of a sentence with the additional pronominal lower subject is taken to indicate that the lower subject is always present as a pronominal, either overt or phonologically null.

There is an issue as to whether these sentences would be an appropriate reflection of the full structure of the original sentences under consideration, as the sentences with resumptive pronouns do have an emphatic sense which is distinct from the original sentence. Choi does call these overt pronouns "resumptive" pronouns, which indicates their special status. The marginal grammaticality of (32) is typical of many resumptive pronoun examples in Korean.

Y. Choi (1988:153) argues that Korean shows a difference between Subject-to-Object Raising sentences and Equi sentences with respect to resumptive pronominal subjects. Just as Kuno (1976) had observed for Japanese, the Equi sentences are better with a resumptive pronoun than the Raising examples. Choi contrasts the Equi sentence with "?" status in (32) with the Raising sentence with ungrammatical status in (33).

(33) * Na-nun John$_i$-ul [**ku**$_i$**-ka** papo(-i)-lako] sayngkak.ha-n-ta
I-Top John-Acc he-Nom fool-(be)-Cmp consider-Pres-Dec
'I consider John to be a fool.'

Thus, even if we were to use an example like (32) to argue against VP complements in Equi sentences, we could not argue in a parallel fashion against VP complements in Raising sentences. Thus, the existence of these examples with nominative resumptive pronouns does not argue against the existence of all VP complements in Korean.

2.2.2.3.3 Floating Quantifiers and other Nominative Non-Subjects It is important to recognize that nominative case itself is not sufficient evidence of subjecthood in Korean, as seen by the existence of nominative case on Focus NP's and on possessor NP's in examples such as the following.

(34) Hankwuk-mal-**i** hanca-ka hankul-pota
Korea-language-Nom Chinese.character-Nom Korean.alphabet-than
elyep-ta
difficult-Dec
'In Korean, Chinese characters are more difficult than the Korean alphabet.'

(35) Nay-ka tongsayng-**i** pyenhosa-i-ta
I-Nom sister-Nom lawyer-be-Dec
'My sister is a lawyer.'

(36) Haksayng-i chayk-i **sey-kwan-i** philyo.ha-ta
student-Nom book-Nom three-volumes-Nom need-Dec
'The student needs three books.'

Thus, the nominative case on the resumptive pronouns is not sufficient to conclude that they should be recognized as subjects, and filling a regular subject slot in the verbal complement.

2.2.2.3.4 Concluding Against Null Lower Subjects Resumptive pronouns may appear to give evidence that Equi complements in Korean are S complements with null lower subjects usually present, but they do not give the same degree of evidence for Raising complements. Thus, there is no strong, theory-independent reason to rule out the existence of VP complements in Korean, in addition to S complements. The existence of both S and VP complements will make Korean similar to many other languages, and the contrast between the expression of full NP's in the lower subject position of S complements, compared with full NP's in the putative lower subject position of VP complements, supports this distinction.

2.2.2.4 Conclusion: Biclausal Structure

We can most naturally account for the case marking and word ordering of the dative and accusative objects identified with the subject of the lower clause if we treat them as matrix objects, and not as subjects of a full lower clause. The possible appearance of full NP's in the lower subject position of S complements, but not VP complements, supports the distinction. Thus, in biclausal sentences, Korean has both S complements and VP complements.

2.2.3 Conclusion: Basic Clause Structure

The evidence presented in the previous sections leads to the conclusion that Korean has a VP in simple sentences, and also includes VPs as complements which can be subcategorized for. Thus, we must compare possible analyses of the causative to both S complement and VP complement analyses. Scrambling has been shown to be clause-bounded, and useful as a test of constituent structure. With this background, we can turn to the periphrastic causatives and determine their structure.

2.3 Testing the Causatives

The central issue of this chapter is establishing that Korean periphrastic causatives have a monoclausal constituent structure, and must be given a different analysis from the more ordinary S and VP complement structures. The previous section has established the existence of S and VP complements in Korean, along with their characteristic behavior with respect to several points. In this section, I measure the causatives against that standard. I will argue, based on facts from scrambling and adverbial case marking that the periphrastic causatives with dative subjects and with accusative subjects do in fact have a distinct structure from S and VP complement sentences. For future research with speakers of the appropriate dialect, I also outline how phonological phrasing could show a contrast between causatives and VP complement sentences. On the basis of scrambling and adverbial case marking, the periphrastic causatives with nominative causees will be shown to fall in line with

S complement behavior, and I will begin referring to them as "embedding causatives" to distinguish them from the other more linguistically unusual periphrastic causatives.

Throughout this section, periphrastic causatives with accusative, dative, and nominative causees will be under discussion. (37) provides examples of each.

(37)	a.	Emeni-kkeyse	ai-**lul**	pap-ul	mek-key	hay-ss-ta
		mother-HNom	child-**Acc**	rice-Acc	eat-Adv	do-Pst-Dec
		'The mother made the child eat the rice.'				
	b.	Emeni-kkeyse	ai-**eykey**	pap-ul	mek-key	hay-ss-ta
		mother-HNom	child-**Dat**	rice-Acc	eat-Adv	do-Pst-Dec
		'The mother made the child eat the rice.'				
	c.	Emeni-kkeyse	ai-**ka**	pap-ul	mek-key	hay-ss-ta
		mother-HNom	child-**Nom**	rice-Acc	eat-Adv	do-Pst-Dec
		'The mother made the child eat the rice.'				

2.3.1 Scrambling

In the previous section, we established two relevant points about scrambling for this discussion: scrambling is clause-bounded, and S and VP complements differ in whether the lower subject belongs to the lower or higher clause, respectively. If the periphrastic causative could be given the same analysis as an S or VP complement sentence, this difference would be important in determining which structure was the correct one. Given this, I will examine the question of the lower subject in causative, and whether it belongs to the matrix clause or to a lower clause.

After examining the lower subject's ordering possibilities, I will contrast the positioning of matrix elements after the verbally-headed complement and before the matrix verb in S and VP complement sentences compared with the causative. Next I examine the lower object's scrambling behavior in S and VP complements and in causatives, to test whether this expected member of the lower clause displays the predicted word orderings.

An additional source of data comes from considering the possible scrambled positions for negative polarity items. In this area as well, the lower object in causative sentences contrasts with the lower object in VP complement sentences.

I will conclude, on the basis of the scrambling data to be discussed in this section, that the causatives with dative and accusative causees pattern very differently from either S or VP complements, but that the causatives with nominative causees, to be called "embedding causatives", fit reasonably well into the S complement analysis.

2.3.1.1 Lower Subject and S vs. VP

Because previous biclausal analyses of Korean periphrastic causatives have come down on either side of the question, evidence on whether the lower subject belongs to the lower clause or to the matrix clause is important for evaluating the success of these previous analyses as well as for determining the position to be adopted here. None of the previous accounts discussed in this paragraph used scrambling data in determining the structures involved; instead, the determining factors were the possible ways of assigning particular cases within their theory. Y. Kim (1990a) takes the position that in causatives with dative causees, the dative lower subject is an element of the matrix clause, while in causatives with accusative causees, the accusative lower subject is an element of the lower clause. Under her account, we would expect to see a corresponding difference in scrambling behavior between dative and accusative causees. O'Grady (1991) and E. Cho (1987, 1988) consider causatives with either accusative or dative causees to involve the lower subject as a matrix clause element. Their accounts predict no difference in scrambling between dative and accusative causees. All three of these accounts analyze causatives with nominative causees as biclausal, with the nominative causee as an element of the lower clause. Thus they predict that the nominative lower subject should not scramble with elements of the matrix clause, instead it should scramble only with elements of the lower clause. This position contrasts with that of Gerdts (1986, 1990), who analyzes the causatives with dative, accusative, and nominative causees as all involving Clause Union, so that the lower subject would be part of the matrix clause in all of these instances.

The question of whether the lower subject of the periphrastic causative scrambles with elements of the matrix clause was actually addressed well before any of the above-mentioned accounts were written. H. Sohn (1973), whose paper on the differences between "auxiliary" and "main" verbs is discussed in Patterson (1974), argues that scrambling shows a clear difference between causatives with nominative causees and those with dative or accusative causees. He gives the examples in (38), where the lower subject *ku pwun-eykey/-ul/-i* 'that person-Dat/-Acc/-Nom' is ordered first, before the matrix clause subject *na-nun* 'I-Top'. If the lower subject is part of the matrix clause, then it would be expected to occur in this position. The examples show that the causatives with dative and accusative causees permit the lower subject to occur before the matrix clause subject, while the causative with the nominative causee does not. Thus, the scrambling data appears to argue for a distinction between the causatives with nominative causees and the causatives with either dative or accusative causees. This position is consistent with accounts such as O'Grady (1991) and E. Cho (1987, 1988), but not with that of Y. Kim (1990a).

(38) a. Ku pwun-**eykey** na-nun o-key hay-ss-ta
That person-**Dat** I-Top come-Adv do-Pst-Dec
'I made him come'.

b. Ku pwun-**ul** na-nun o-key hay-ss-ta
That person-**Acc** I-Top come-Adv do-Pst-Dec
'I made him come'.

c. *Ku pwun-**i** na-nun o-key hay-ss-ta
That person-**Nom** I-Top come-Adv do-Pst-Dec
'I made him come'.

Because the examples given by H. Sohn involve placing the causee sentence-initially, they are not completely distinct from the kind of long-distance topicalization discussed earlier. The contrast between the examples does argue for a difference between the causatives based on the case marking of the causee, but this point is strengthened by scrambling examples which involve more matrix elements and more lower clause elements, in which the lower clause subject is not sentence-initial. I give such examples below in (39), where a matrix adverb, *kwantay.ha-key-to* 'very generously' is the initial element, and the lower clause subject *tosekwan.cikwen-eykey/-ul/-i* 'librarian-Dat/-Acc/-Nom' occurs before the matrix subject *pwuca-ka* 'rich man-Nom'. These examples have the same judgments as Sohn's examples.

(39) a. kwantay.ha-key-to **tosekwan.cikwen-eykey** pwuca-ka ai-eykey
Very.generously librarian-**Dat** rich.man-Nom child-Dat
chayk-ul myech-kwen cwu-key hay-ss-ta
book-Acc several-volumes give-Adv do-Pst-Dec
'Very generously, the rich man made the librarian give the child some books'.

b. kwantay.ha-key-to **tosekwan.cikwen-ul** pwuca-ka ai-eykey
Very.generously librarian-**Acc** rich.man-Nom child-Dat
chayk-ul myech-kwen cwu-key hay-ss-ta
book-Acc several-volumes give-Adv do-Pst-Dec
'Very generously, the rich man made the librarian give the child some books'.

c. *kwantay.ha-key-to **tosekwan.cikwen-i** pwuca-ka [ai-eykey
Very.generously librarian-**Nom** rich.man-Nom child-Dat
chayk-ul myech-kwen cwu-key] hay-ss-ta
book-Acc several-volumes give-Cmp do-Pst-Dec
'The rich man very generously had the librarian give the child some books'.

This data regarding the fixed ordering of the nominative-marked causer from the higher clause and the nominative-marked causee from the lower clause is not sufficient to argue for a clausal boundary,[10] since sentences with nominative objects show the

[10]Saito (1985:195-222) argues that nominative-marked NP's in Japanese never scramble, because nominative Case in Japanese is inherent, i.e. not assigned by any element, and thus the variable left behind by a scrambled nominative NP would not receive its required Case. Assuming this analysis for Korean as well would add another possible reason for the insufficiency of these arguments.

same kind of fixed ordering and these sentences should involve a nominative subject and object within the same clause.[11]

(40) a. Nay-ka pi-ka coh-ta
I-Nom rain-Nom like-Dec
'I like rain.'

b. *Pi-ka nay-ka coh-ta
rain-Nom I-Nom like-Dec
'I like rain.'

(41) a. Nay-ka ton-i iss-ta
I-Nom money-Nom have-Dec
'I have money.'

b. *Ton-i nay-ka iss-ta
money-Nom I-Nom have-Dec
'I have money.'

Since we cannot rely on the nominative-marked arguments for information, we must turn to other matrix clause elements, namely adverbs. In biclausal examples, adverbs, just like arguments, cannot be separated from their clause.

In the S complement sentence in (42), the matrix adverb *hyenmyeng.ha-key-to* 'cleverly' can only be interpreted as modifying the matrix clause verb *malssum.ha-si-ess-ta* 'said' if it occurs in the midst of matrix clause items, as in (42a), (42b), and (42c). When the adverb is placed in the midst of embedded clause elements, such as

[11] It is possible to order the nominative object of (40) before the subject in a sentence with a pause between the arguments, and topic marking instead of nominative marking on the higher subject, as seen in (i).

(i) Pi-ka, na-nun coh-ta
rain-Nom I-Top lie-Dec
'Rain, I like.'

However, the marked nature of this sentence serves to illustrate the difference in scrambling possibilities between nominative objects and non-nominative objects.

in (42d) and (42e), then it cannot modify the matrix verb. These sentences require the adverb to modify the embedded verb instead.

(42) a. **Hyenmyeng.ha-key-to** emeni-kkeyse sensayngnim-kkey [**ai-ka**
cleverly mother-HNom teacher-Dat child-Nom
chayk-ul ilk-ess-ta-ko] malssum.ha-si-ess-ta
book-Acc read-Pst-Dec-Quot say-Hon-Pst-Dec
'Cleverly, the mother told the teacher that the child had read the book.'

b. Emeni-kkeyse **hyenmyeng.ha-key-to** sensayngnim-kkey [**ai-ka**
mother-HNom cleverly teacher-Dat child-Nom
chayk-ul ilk-ess-ta-ko] malssum.ha-si-ess-ta
book-Acc read-Pst-Dec-Quot say-Hon-Pst-Dec
'The mother cleverly told the teacher that the child had read the book.'

c. Emeni-kkeyse sensayngnim-kkey **hyenmyeng.ha-key-to** [**ai-ka**
mother-HNom teacher-Dat cleverly child-Nom
chayk-ul ilk-ess-ta-ko] malssum.ha-si-ess-ta
book-Acc read-Pst-Dec-Quot say-Hon-Pst-Dec
'The mother told the teacher cleverly that the child had read the book.'

d. *Emeni-kkeyse sensayngnim-kkey [**ai-ka** **hyenmyeng.ha-key-to**
mother-HNom teacher-Dat child-Nom cleverly
chayk-ul ilk-ess-ta-ko] malssum.ha-si-ess-ta
book-Acc read-Pst-Dec-Quot say-Hon-Pst-Dec
'The mother told the teacher cleverly that the child had read the book.'

e. *Emeni-kkeyse sensayngnim-kkey [**ai-ka** chayk-ul
mother-HNom teacher-Dat child-Nom book-Acc
hyenmyeng.ha-key-to ilk-ess-ta-ko] malssum.ha-si-ess-ta
cleverly read-Pst-Dec-Quot say-Hon-Pst-Dec
'The mother told the teacher cleverly that the child had read the book.'

Similarly, in the VP complement sentence in (43), the matrix adverb *hyenmyeng.ha-key-to* 'cleverly' can only modify the matrix verb *chwungko.ha-si-ess-ta* 'advised' if it occurs among matrix clause elements, as in (43a), (43b), and (43c). When the adverb occurs in the midst of embedded clause elements, as in (43d), the only possible reading is for the adverb to modify the lower verb. It cannot modify the matrix verb in this lower clause position.

(43) a. **Hyenmyeng.ha-key-to** emeni-kkeyse ai-eykey [chayk-ul ilk-tolok]
cleverly mother-HNom child-Dat book-Acc read-Cmp
chwungko.ha-si-ess-ta
advise-Hon-Pst-Dec
'Cleverly, the mother advised the child to read the book.'

b. Emeni-kkeyse **hyenmyeng.ha-key-to** ai-eykey [chayk-ul ilk-tolok]
mother-HNom cleverly child-Dat book-Acc read-Cmp
chwungko.ha-si-ess-ta
advise-Hon-Pst-Dec
'The mother cleverly advised the child to read the book.'

c. Emeni-kkeyse ai-eykey **hyenmyeng.ha-key-to** [chayk-ul ilk-tolok]
mother-HNom child-Dat cleverly book-Acc read-Cmp
chwungko.ha-si-ess-ta
advise-Hon-Pst-Dec
'The mother advised the child cleverly to read the book.'

d. *Emeni-kkeyse ai-eykey [chayk-ul **hyenmyeng.ha-key-to** ilk-tolok]
mother-HNom child-Dat book-Acc cleverly read-Cmp
chwungko.ha-si-ess-ta
advise-Hon-Pst-Dec
'The mother cleverly advised the child to read the book.'

This restriction of adverbs to the clause they modify means that we can look at the ordering of matrix adverbs to examine word order possibilities, without disturbing the relative order of the two Nominative marked phrases. In the following examples, a matrix adverb can be ordered after a lower accusative or dative causee, but a nominative causee cannot have a matrix adverb after it. The sentence is only good under the reading where it modifies the lower predicate.

(44) a. ?Pwuca-ka tosekwan.cikwen-**ul** ai-eykey kwantayhakey-to chayk-ul
rich.man-Nom librarian-**Acc** child-Dat generously-very book-Acc
myech-kwen cwu-key hay-ss-ta
several-volumes give-Adv do-Pst-Dec
'Very generously, the rich man made the librarian give the child some books'.

b. ?Pwuca-ka tosekwan.cikwen-**eykey** ai-eykey kwantayhakey-to
rich.man-Nom librarian-**Dat** child-Dat generously-very
chayk-ul myech-kwen cwu-key hay-ss-ta
book-Acc several-volumes give-Adv do-Pst-Dec
'Very generously, the rich man made the librarian give the child some books'.

c. *Pwuca-ka tosekwan.cikwen-**i** ai-eykey kwantay.ha-key-to chayk-ul
rich.man-Nom librarian-**Nom** child-Dat generously-very book-Acc
myech-kwen cwu-key hay-ss-ta
several-volumes give-Adv do-Pst-Dec
'Very generously, the rich man made the librarian give the child some books'.

2.3.1.2 Lower Subject and Lower Clause

The examples just given suggest that the lower subject in causatives with dative and accusative-marked causees is an element of the matrix clause, while in causatives with nominative-marked causees, the lower subject is an element of the lower clause. As in the examples with S and VP complements, the complementary side of this issue is the scrambling behavior of the lower subject with elements of the lower clause. We would predict that a nominative-marked causee would scramble with elements of the lower clause, while accusative or dative-marked causees would not be able to scramble in the same way. Sohn did not present any of this kind of example, and his above examples have no elements of the lower clause other than the verb, so that they do not present the opportunity to test lower clause scrambling.

The following two sets of examples involve the same lexical items as the previous long examples, and examine the positioning of the lower subject amidst elements of the lower clause, for the causatives with all three possible case markings on the causee.

(45) shows examples where the lower clause subject *tosekwan.cikwen-eykey/-ul/-i* 'librarian-Dat/-Acc/-Nom' occurs after one item of the lower clause, *ai-eykey* 'child-Dat' and before the lower direct object, *chayk-ul* 'books-Acc' and lower verb *cwu-key* 'give-Adv'.

(45) a. Kwantay.ha-key-to pwuca-ka ai-eykey **tosekwan.cikwen-eykey**
Very.generously rich.man-Nom child-Dat librarian-**Dat**
chayk-ul myech-kwen cwu-key hay-ss-ta
book-Acc several-volumes give-Adv do-Pst-Dec
'Very generously, the rich man made the librarian give the child some books'.

b.???Kwantay.ha-key-to pwuca-ka ai-eykey **tosekwan.cikwen-ul**
Very.generously rich.man-Nom child-Dat librarian-**Acc**
chayk-ul myech-kwen cwu-key hay-ss-ta
book-Acc several-volumes give-Adv do-Pst-Dec
'Very generously, the rich man made the librarian give the child some books'.

c. Kwantay.ha-key-to pwuca-ka [ai-eykey **tosekwan.cikwen-i**
Very.generously rich.man-Nom child-Dat librarian-**Nom**
chayk-ul myech-kwen cwu-key] hay-ss-ta
book-Acc several-volumes give-Cmp do-Pst-Dec
'The rich man very generously had the librarian give the child some books'.

(46) gives examples of the lower clause subject *tosekwan.cikwen-eykey/-ul/-i* 'librarian-Dat/-Acc/-Nom' occurring after more items of the lower clause, specifically

after the indirect object *ai-eykey* 'child-Dat' and the lower direct object, *chayk-ul* 'books-Acc', and before the lower verb *cwu-key* 'give-Adv'.

(46) a. Kwantay.ha-key-to pwuca-ka ai-eykey chayk-ul myech-kwen
Very.generously rich.man-Nom child-Dat book-Acc several-volumes
tosekwan.cikwen-eykey cwu-key hay-ss-ta
librarian-**Dat** give-Adv do-Pst-Dec
'Very generously, the rich man made the librarian give the child some books'.

b.???Kwantay.ha-key-to pwuca-ka ai-eykey chayk-ul myech-kwen
Very.generously rich.man-Nom child-Dat book-Acc several-volumes
tosekwan.cikwen-ul cwu-key hay-ss-ta
librarian-**Acc** give-Adv do-Pst-Dec
'Very generously, the rich man made the librarian give the child some books'.

c. Kwantay.ha-key-to pwuca-ka [ai-eykey chayk-ul myech-kwen
Very.generously rich.man-Nom child-Dat book-Acc several-volumes
tosekwan.cikwen-i cwu-key] hay-ss-ta
librarian-**Nom** give-Cmp do-Pst-Dec
'The rich man very generously had the librarian give the child some books'.

I have found three different patterns of judgments for these sets of examples among my consultants. The pattern of judgments marked on the examples leads to the most interesting conclusions for Korean causatives, and it is the one I will follow. In this dialect, a dative causee can scramble among lower clause elements, as if it were an element of the lower clause. An accusative causee shows some possibility of this scrambling, though not as definitely. As expected under every analysis, the nominative causee also scrambles with the lower clause elements.

These examples present a conflict for the generalization that elements from a clause will scramble with each other but not with items from other clauses. This generalization accounted perfectly for the sentences with S and VP complements, and also for the behavior of the causative with a nominative causee, if it is taken to involve an S complement. Under this scrambling generalization, however, the causatives with dative causees, in particular, and possibly also accusative causees, appear to involve a lower subject which is simultaneously an element of the matrix clause and an element of the lower clause. To settle the issue of the validity of the generalization that scrambling is clause-bounded in light of this unexpected scrambling within the lower clause, we should closely examine the scrambling behavior of other elements within the clause.

In a second pattern of judgments, the scrambling of the dative or accusative lower subject with lower clause elements appears to be ungrammatical, while the scrambling of a nominative lower subject with lower clause elements is possible. It is important to note that a particular difficulty in interpreting the sentences in (45a), (45b), (46a), and (46b) with the intended reading is that in terms of case marking, the causee, *tosekwan.cikwen-ul/-eykey* librarian-Acc/-Dat, and the lower indirect object, *ai-eykey* 'child-Dat', are equivalent to each other, and could each be interpreted as belonging to either higher or lower verb. Linear order of these two similarly case-marked animate phrases apparently plays a role in their interpretation, to the point that that it eliminates the possibility of the interpretation corresponding to a non-canonical position of the arguments, and makes the recipient *ai-eykey* 'child-Dat' into the causee.

This second pattern of judgments, in which accusative and dative causees contrast with nominative causees, might also be seen to favor a VP complement analysis for the causative. However, speakers with this pattern of judgments should compare their judgments with the many other areas of evidence concerning the periphrastic causative structure before treating this one set of examples as conclusive. These areas include further scrambling data in this section, as well as evidence presented later in the thesis concerning adverbial case marking data, negative scope over the verbal complex structure of the causative, and clause-bounded anaphora.

The third pattern of judgments, in which all these examples are considered ungrammatical, brings out the difficulties in finding plausible scrambled sentences with a large number of NP's to illustrate a fully specified structure. Y. Lee (1993:7, fn. 7) remarks that "Processing of a scrambled sentence becomes proportionately harder as the number of arguments increases." Under any analysis, the clause-internal scrambling of the nominative causee with the lower clause elements should be possible, and yet it is not available for some speakers. Thus scrambling data should be interpreted in conjunction with other forms of evidence.

While the second and third patterns of judgments show us particular dangers of scrambling data, and warn us to be cautious in our interpretations, the first pattern of judgments shows us that causatives can be seen as having some unusual properties in terms of clausality. It is important for us to gather data on the full range of scrambling possibilities, to assess the status of the generalization that scrambling is clause-bounded, and the complete clausal structure of the periphrastic causatives. We now turn from the scrambling behavior of the lower subject to that of the lower object.

2.3.1.3 Lower Object and Lower vs. Matrix Clause

In this section, we will examine the word order possibilities of the lower clause object and the lower clause verb with respect to matrix elements. The lower object and the lower verb should be members of the lower clause for both the S and VP complement sentences. We will first establish this expected fact, then go on to compare the behavior of the causatives with each possible case marking of the causee against that background.

If scrambling is clause-bounded, then the lower verb and the lower object in both S and VP complements should not permit matrix elements to occur between them. The examples below confirm this expectation. In the example of an S complement sentence in (47), we see that the matrix subject *emeni-kkeyse* 'mother-Nom' cannot occur between the lower object *chayk-ul* 'book-Acc' and the lower verb *ilk-ess-ta-ko* 'read'. (48) gives VP complement sentences which show that the matrix subject *pyeng-ey kellin emeni-kkeyse* 'sick mother' cannot occur between the lower object *pap-ul* 'rice-Acc' and the lower verb *meki-tolok* 'feed-Cmp'.

(47)	a.	**Emeni-kkeyse**	sensayngnim-kkey	[ai-ka	chayk-ul
		mother-HNom	teacher-Dat	child-Nom	book-Acc

ilk-ess-ta-ko] malssum.ha-si-ess-ta
read-Pst-Dec-Quot say-Hon-Pst-Dec
'The mother told the teacher that the child had read the book.'

b. *Sensayngnim-kkey [ai-ka chayk-ul **emeni-kkeyse**
teacher-Dat child-Nom book-Acc mother-HNom
ilk-ess-ta-ko] malssum.ha-si-ess-ta
read-Pst-Dec-Quot say-Hon-Pst-Dec
'The mother told the teacher that the child had read the book.'

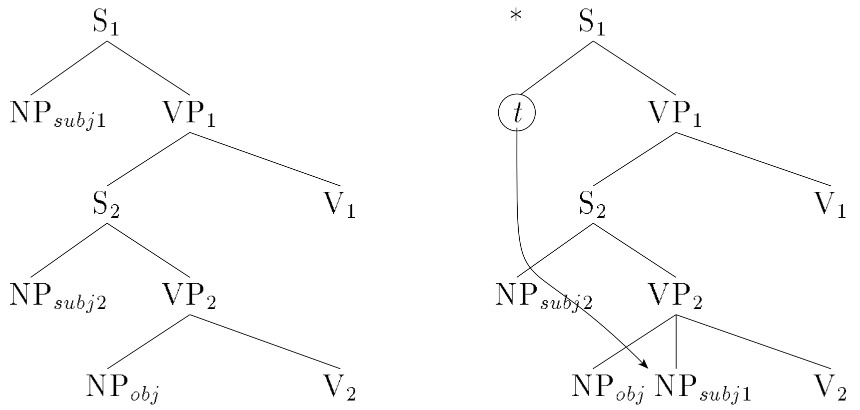
(48) a. **Pyeng-ey kellin emeni-kkeyse** sikmo-eykey [ai-eykey pap-ul
sickness-Dat caught mother-HNom maid-Dat child-Dat rice-Acc
meki-tolok] myenglyeng.ha-si-ess-ta
feed-so.that order-Hon-Pst-Dec
'The sick mother ordered the maid to feed the child rice.'

b. *Sikmo-eykey [ai-eykey pap-ul **pyeng-ey kellin emeni-kkeyse**
maid-Dat child-Dat rice-Acc sickness-Dat caught mother-HNom
meki-tolok] myenglyeng.ha-si-ess-ta
feed-so.that order-Hon-Pst-Dec
'The sick mother ordered the maid to feed the child rice.'

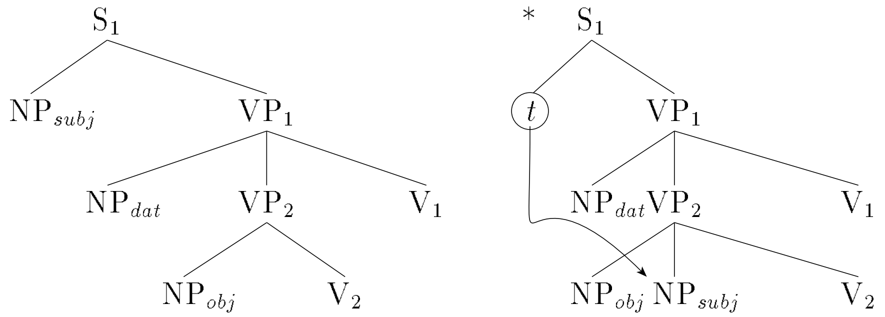
The structure of these sentences is illustrated in the trees in (49) and (50).

I provide trees for the ungrammatical examples as a conceptual aid toward seeing which items are occurring where in the scrambled sentence. However, my theoretical position on these sentences is that they cannot be given any genuine tree, as they cannot exist configurationally. I use traces and arrows for a method of describing the relation of the ungrammatical tree to a grammatical tree, but not as any serious analytical representation.

(49) S complement: canonical order S complement: scrambled order



(50) VP complement: canonical order VP complement: scrambled order



These examples have illustrated how the matrix subject cannot occur in the midst of lower clause elements, in this case, the lower object and the lower verb. To demonstrate that the impossibility of this ordering follows from our general principle of the clause-boundedness of scrambling and not from anything particular to the matrix subject, we can look at matrix adverbs in the same position. In the S complement sentences in (51), we see that the matrix adverb *calangsulep-key* 'proudly' also cannot occur between the lower object *chayk-ul* 'book-Acc' and the lower verb *ilk-ess-ta-ko* 'read'. (52) shows that the same behavior is true in VP complement sentences, as the matrix adverb *cacwu* 'frequently' cannot occur between the lower object *pap-ul* 'rice-Acc' and the lower verb *meki-tolok* 'feed-Cmp'. Note that in these sentences, the ungrammaticality corresponds to the reading where the adverb modifies the matrix clause, as indicated in the English gloss. Under the reading where the adverb modifies the lower clause, then these word orders are completely fine.

(51) a. **Emeni-kkeyse** calangsulep-key sensayngnim-kkey [ai-ka chayk-ul
mother-HNom proud-Adv teacher-Dat child-Nom book-Acc
ilk-ess-ta-ko] malssum.ha-si-ess-ta
read-Pst-Dec-Quot say-Hon-Pst-Dec
'The mother proudly told the teacher that the child had read the book.'

b. ***Emeni-kkeyse** sensayngnim-kkey [ai-ka chayk-ul calangsulep-key
mother-HNom teacher-Dat child-Nom book-Acc proud-Adv
ilk-ess-ta-ko] malssum.ha-si-ess-ta
read-Pst-Dec-Quot say-Hon-Pst-Dec
'The mother proudly told the teacher that the child had read the book.'

(52) a. **Pyeng-ey kellin emeni-kkeyse** cacwu sikmo-eykey [ai-eykey
sickness-Dat caught mother-HNom frequently maid-Acc child-Dat
pap-ul meki-tolok] myenglyeng.ha-si-ess-ta
rice-Acc feed-so.that order-Hon-Pst-Dec
'The sick mother frequently ordered the maid to feed the child rice.'

b. **Pyeng-ey kellin emeni-kkeyse** sikmo-eykey [ai-eykey pap-ul
sickness-Dat caught mother-HNom maid-Acc child-Dat rice-Acc
cacwu meki-tolok] myenglyeng.ha-si-ess-ta
frequently feed-so.that order-Hon-Pst-Dec
'The sick mother frequently ordered the maid to feed the child rice.'

The preceding examples have confirmed that matrix elements cannot be ordered among lower clause elements in S and VP complements. In the previous section we saw that the lower subjects in causatives with dative and perhaps also accusative causees can occur among the lower clause elements, even though these same causees could also occur among the matrix clause elements. With the behavior of the lower clause in S and VP complements as a background, we can now examine the behavior of the lower clause in causative sentences with accusative and dative causees. We will also see if the causatives with nominative causees continue to behave in the same way as S complements, which would mean for these examples that no matrix elements should occur in the lower clause.

(53) gives causative examples with dative, accusative, and nominative causees, respectively, where the clear matrix elements, the matrix adverb *kwantay.ha-key-to* 'very generously' and the matrix subject *pwuca-ka* 'rich man-Nom', occur initially, outside of all the possible lower clause elements. The matrix subject, *pwuca-ka* 'rich man-Nom', is boldfaced for ease of comparison with the scrambled examples in (54), where the matrix subject occurs between the lower object, *chayk-ul* 'books-Acc',[12] and the lower verb, *cwu-key* 'give-Adv'. In these examples, we see that the matrix subject is acceptable in this position between these lower clause elements in the causative sentences with dative and accusative causees, but not in the causative sentence with the nominative causee. Thus, the behavior of the matrix subject corresponds with that of the lower subject in each of the types of causative according to case marking of the causee.

(53) a. Kwantay.ha-key-to **pwuca-ka** tosekwan.cikwen-eykey ai-eykey
generously-very rich.man-**Dat** librarian-Dat child-Dat
chayk-ul myech-kwen cwu-key hay-ss-ta
book-Acc several-volumes give-Adv do-Pst-Dec
'Very generously, the rich man made the librarian give the child some books.'

b. Kwantay.ha-key-to **pwuca-ka** tosekwan.cikwen-ul ai-eykey
generously-very rich.man-**Acc** librarian-Acc child-Dat
chayk-ul myech-kwen cwu-key hay-ss-ta
book-Acc several-volumes give-Adv do-Pst-Dec
'Very generously, the rich man made the librarian give the child some books.'

[12] *Myech-kwen* 'several volumes' is a floated quantifier, and not part of the lower object NP.

c. Kwantay.ha-key-to **pwuca-ka** tosekwan.cikwen-i ai-eykey
generously-very rich.man-**Nom** librarian-Nom child-Dat
chayk-ul myech-kwen cwu-key hay-ss-ta
book-Acc several-volumes give-Adv do-Pst-Dec
'Very generously, the rich man made the librarian give the child some books.'

(54) a. Kwantay.ha-key-to tosekwan.cikwen-eykey ai-eykey chayk-ul
generously-very librarian-Dat child-Dat book-Acc
myech-kwen **pwuca-ka** cwu-key hay-ss-ta
several-volumes rich.man-**Dat** give-Adv do-Pst-Dec
'Very generously, the rich man made the librarian give the child some books.'

b. Kwantay.ha-key-to tosekwan.cikwen-lul ai-eykey chayk-ul
generously-very librarian-Acc child-Dat book-Acc
myech-kwen **pwuca-ka** cwu-key hay-ss-ta
several-volumes rich.man-**Acc** give-Adv do-Pst-Dec
'Very generously, the rich man made the librarian give the child some books.'

c. *Kwantay.ha-key-to tosekwan.cikwen-i ai-eykey chayk-ul
generously-very librarian-Nom child-Dat book-Acc
myech-kwen **pwuca-ka** cwu-key hay-ss-ta
several-volumes rich.man-**Nom** give-Adv do-Pst-Dec
'Very generously, the rich man made the librarian give the child some books.'

In (55), we examine the possibility of ordering of the matrix adverb *kwantay.ha-key-to* in the same lower clause position as the matrix subject in (54), namely between the lower object *chayk-ul* 'books-Acc' and the lower verb *cwu-key* 'give'. Here, too, we find exactly the same distinction between causative sentences based on the case marking of their causees. Causatives with accusative or dative causees permit the matrix adverb to occur in this position, while causatives with nominative causees do not.

(55) a. Pwuca-ka tosekwan.cikwen-eykey ai-eykey chayk-ul
rich.man-**Dat** librarian-Dat child-Dat book-Acc
myech-kwen **kwantay.ha-key-to** cwu-key hay-ss-ta
several-volumes generously-very give-Adv do-Pst-Dec
'Very generously, the rich man made the librarian give the child some books.'

b. Pwuca-ka tosekwan.cikwen-ul ai-eykey chayk-ul myech-kwen
rich.man-**Acc** librarian-Acc child-Dat book-Acc several-volumes
kwantay.ha-key-to cwu-key hay-ss-ta
generously-very give-Adv do-Pst-Dec
'Very generously, the rich man made the librarian give the child some books.'

c. *Pwuca-ka tosekwan.cikwen-i ai-eykey chayk-ul myech-kwen
rich.man-**Nom** librarian-Nom child-Dat book-Acc several-volumes
kwantay.ha-key-to cwu-key hay-ss-ta
generously-very give-Adv do-Pst-Dec
'Very generously, the rich man made the librarian give the child some books.'

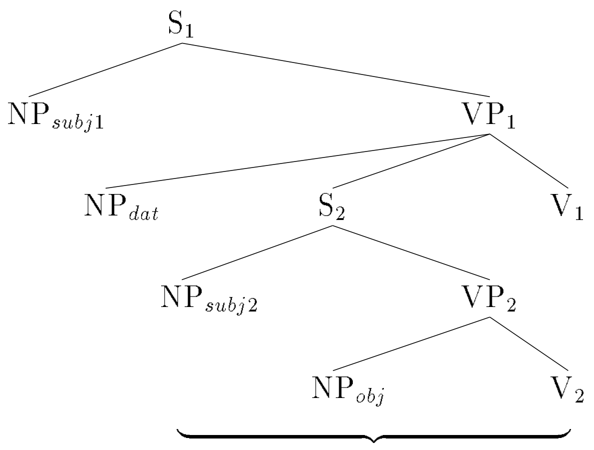
We have seen how matrix elements in causatives with dative and accusative causees may freely scramble with items which should be in the lower complement clause, while matrix elements in causatives with nominative causees do not scramble with lower clause elements.

With elements of the matrix clause freely scrambling with elements of the lower clause, we are faced with either re-defining the boundaries of scrambling to a domain larger than a clause, or re-examining our idea of a clause boundary in these sentences. The contrasts with the S and VP complement sentences in these sections have shown that describing the clause as the domain of scrambling has generally matched the facts for these non-causative sentences. Any domain for scrambling which allowed the orderings we found in the causative sentences would still have to restrict the non-causative sentences appropriately. A successful redefinition of the domain of scrambling in this direction looks difficult, if not impossible, to me.

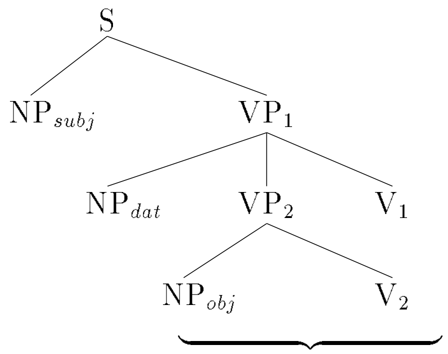
The more promising option appears to be re-examining the idea of the clause boundary in the causative sentences with dative and accusative causees. If there were no clause boundary in these sentences, nothing would limit the free ordering anywhere in the causative sentence of the subject of the matrix verb and of adverbs modifying the matrix verb, including positions between items which are subcategorized for by the lower verb or which modify the lower verb. If there is no clause boundary in these sentences, but there is a clause boundary in the causative sentences with a nominative causee and in the sentences with S and VP complements, then the original generalization of scrambling occurring freely within a clause will cover all of these types of sentences.

In other words, a causative sentence would have free ordering of all its elements, while an S complement sentence would not permit scrambling of items across the embedded clause boundary, and a VP complement sentence would not permit scrambling of items across the VP complement boundary. These embedded regions, forming islands with respect to scrambling, are indicated by the underbraces in the trees below. The tree in (56) gives the structure for the canonical ordering of an S complement sentence, while the tree in (57) illustrates the canonical ordering for a VP complement sentence.

(56) S complement: canonical order



(57) VP complement: canonical order



Before giving a structure for the causative, I will review scrambling data concerning the lower verb and the interaction of scrambling and negative polarity. At the conclusion of this section on scrambling, I will provide the constituent structure for the causative, and examine it in relation to several other kinds of evidence of constituent structure.

2.3.1.4 Between Complement and Matrix Verb

We have now seen that causatives with accusative and dative causees have distinct behavior from S complements with respect to the free word ordering of the lower subject, and that these same causatives differ from both S and VP complements with respect to the free word ordering of the lower object. Causatives with nominative causees show neither of these properties, and have appeared essentially to involve S complements. Before finally settling on an analysis which simply eliminates the clause boundary for the causatives with accusative and dative causees, and treats causatives with nominative causees as normal S complement sentences, we need to examine the additional data presented in this section, which distinguishes all of the types of periphrastic causative from sentences with the usual S and VP complements.

In discussing scrambling of the lower subject of S and VP complements, I included a particular type of example which was absent from the previous section on the lower subject in causatives. When we examined the ways in which the lower subject of a VP complement acted like a matrix element, we saw that it scrambled not only with the matrix subject, but also with the whole lower VP constituent. The example is repeated here below, with the canonical ordering given first, and the lower subject in boldface. The lower subject *ai-eykey* 'child-Dat' can occur between the VP complement, whose final element is its head *ilk-tolok* 'read-Cmp', and the sentence-final matrix verb *seltuk.ha-si-ess-ta* 'persuaded'.

(58) a. Hyenmyeng.ha-key-to emeni-kkeyse **ai-eykey** [chayk-ul ilk-tolok]
cleverly mother-HNom child-Dat book-Acc read-Cmp
seltuk.ha-si-ess-ta
persuade-Hon-Pst-Dec
'Cleverly, the mother persuaded the child to read the book.'

b. Hyenmyeng.ha-key-to emeni-kkeyse [chayk-ul ilk-tolok] **ai-eykey**
cleverly mother-HNom book-Acc read-Cmp child-Dat
seltuk.ha-si-ess-ta
persuade-Hon-Pst-Dec
'Cleverly, the mother persuaded the child to read the book.'

Since the preceding section on scrambling in causatives concluded that causatives with accusative and dative causees had lower subjects which acted like matrix elements, we would expect these lower subjects to occur between the lower verb and the matrix verb, just as we have seen for lower subjects of VP complements.

Similarly, S complements had lower subjects which belonged to the lower clause and thus could not occur in the position between the lower verb and the matrix verb. The example from the original discussion of this issue is repeated here, again with the canonical ordering followed by the scrambled ordering, and the lower subject in boldface.

(59) a. Emeni-kkeyse sensayngnim-kkey [**ai-ka** chayk-ul
mother-HNom teacher-Dat child-Nom book-Acc
ilk-ess-ta-ko] malssum.ha-si-ess-ta
read-Pst-Dec-Quot say-Hon-Pst-Dec
'The mother told the teacher that the child had read the book.'

b. *Emeni-kkeyse sensayngnim-kkey [chayk-ul ilk-ess-ta-ko]
mother-HNom teacher-HDat book-Acc read-Pst-Dec-Quot
ai-ka malssum.ha-si-ess-ta
child-Nom say-Hon-Pst-Dec
'The mother told the teacher that the child had read the book.'

With the causatives with nominative causees having lower subjects which act like lower clause elements, we would expect these nominative-marked lower subjects to contrast with the accusative and dative-marked causees by not occurring between the lower verb and matrix verb.

The data on causatives does not clearly provide us with the expected contrast. Instead, it appears that regardless of the case marking on the causee, none of the lower subjects can occur in this position. (60) gives the canonical ordering for causatives with the three possible case markings, and (61) gives the ungrammatical examples for all three case markings, of the causee between the lower verb and the matrix verb. The causee is boldfaced in these examples.

(60) a. Emeni-kkeyse **ai-eykey** chayk-ul ilk-key ha-si-ess-ta
mother-HNom child-**Dat** book-Acc read-Adv do-Hon-Pst-Dec
'Mother made the child read the book.'

b. Emeni-kkeyse **ai-lul** chayk-ul ilk-key ha-si-ess-ta
mother-HNom child-**Acc** book-Acc read-Adv do-Hon-Pst-Dec
'Mother made the child read the book.'

c. Emeni-kkeyse **ai-ka** chayk-ul ilk-key ha-si-ess-ta
mother-HNom child-**Nom** book-Acc read-Adv do-Hon-Pst-Dec
'Mother made the child read the book.'

(61) a. * Emeni-kkeyse chayk-ul ilk-key **ai-eykey** ha-si-ess-ta
mother-HNom book-Acc read-Adv child-**Dat** do-Hon-Pst-Dec
'Mother made the child read the book.'

b. * Emeni-kkeyse chayk-ul ilk-key **ai-lul** ha-si-ess-ta
mother-HNom book-Acc read-Adv child-**Acc** do-Hon-Pst-Dec
'Mother made the child read the book.'

c. * Emeni-kkeyse chayk-ul ilk-key **ai-ka** ha-si-ess-ta
mother-HNom book-Acc read-Adv child-**Nom** do-Hon-Pst-Dec
'Mother made the child read the book.'

The causative with the nominative causee would be expected not to permit the above kind of scrambling, so the above examples show unusual behavior only for the causatives with dative and accusative causees. However, further investigation shows us that all the causatives are unusual in this respect.

If we examine the VP and S complements further with regard to scrambling between the lower verb and the matrix verb, the examples are completely as would be predicted. Non-disputed matrix elements occur freely in this position. I provide below examples of the matrix subject and of a matrix adverb occurring in this position, as well as trees indicating both the canonical ordering and the scrambled ordering where the matrix subject occurs between the S or VP complement and the matrix verb.

(62) shows the canonical ordering for a sentence with a VP complement, and a possible scrambled ordering with the matrix subject *emeni-kkeyse* 'mother-HNom' occurring after the final verb of the VP complement, *ilk-tolok* 'read-Cmp', and before the matrix verb *seltuk.ha-si-ess-ta* 'persuaded'. Similarly, (63) shows the canonical ordering for a sentence with an S complement, and a possible scrambled ordering with the matrix subject *emeni-kkeyse* 'mother-HNom' occurring after the final verb of the S complement, *ilk-ess-ta-ko* 'read-Pst-Dec-Quot', and before the matrix verb *malssum.ha-si-ess-ta* 'said'.

(62) a. **Emeni-kkeyse** ai-eykey [chayk-ul ilk-tolok] seltuk.ha-si-ess-ta
Mother-HNom child-Dat book-Acc read-Cmp persuade-Hon-Pst-Dec
'Mother persuaded the child to read the book.'

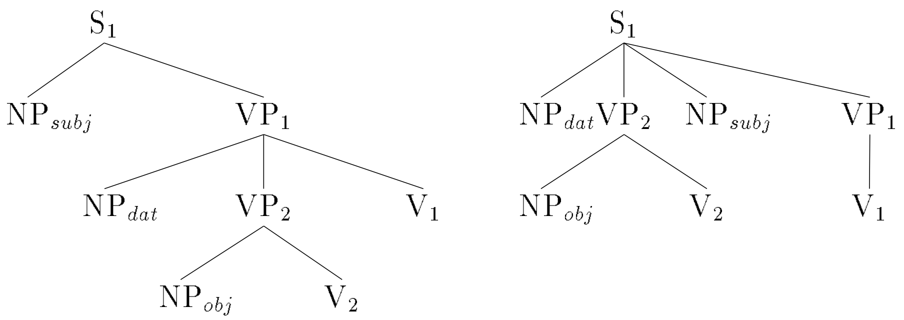
b. Ai-eykey [chayk-ul ilk-tolok] **emeni-kkeyse** seltuk.ha-si-ess-ta
child-Dat book-Acc read-Cmp mother-HNom persuade-Hon-Pst-Dec
'Mother persuaded the child to read the book.'

(63) a. **Emeni-kkeyse** [ai-ka chayk-ul ilk-ess-ta-ko]
Mother-HNom child-Nom book-Acc read-Pst-Dec-Quot
malssum.ha-si-ess-ta
say-Hon-Pst-Dec
'Mother said that the child read the book.'

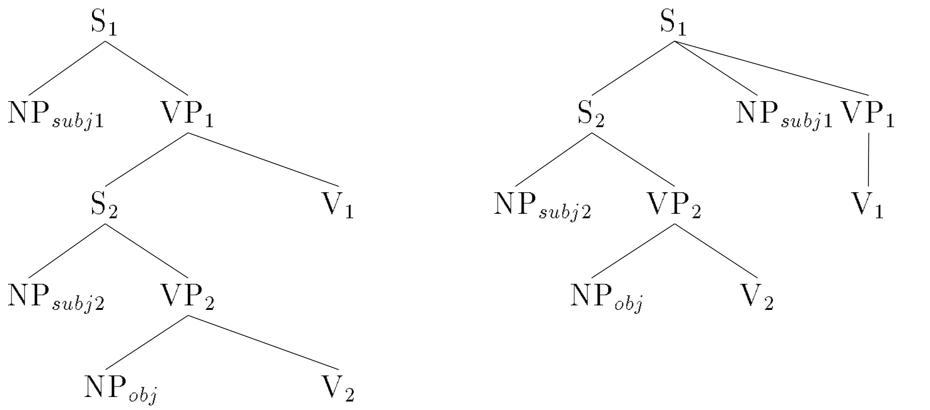
b. [Ai-ka chayk-ul ilk-ess-ta-ko] **emeni-kkeyse**
child-Nom book-Acc read-Pst-Dec-Quot mother-HNom
malssum.ha-si-ess-ta
say-Hon-Pst-Dec
'Mother said that the child read the book.'

Trees illustrating these orderings of the VP and S complement sentences, both canonical and scrambled, are given in (64) and (65).

(64) VP complement: canonical order VP complement: scrambled order



(65) S complement: canonical order S complement: scrambled order



(66) and (67) provide similar examples with matrix adverbs. In each case, the canonical ordering is given first, and the ordering with the matrix adverb between the two verbs is given second, with the relevant matrix adverb, *coyonghi* 'quietly', boldfaced.

(66) a. Emeni-kkeyse **coyonghi** ai-eykey [chayk-ul ilk-tolok]
Mother-HNom quietly child-Dat book-Acc read-Cmp
seltuk.ha-si-ess-ta
persuade-Hon-Pst-Dec
'Mother quietly persuaded the child to read the book.'

b. Emeni-kkeyse ai-eykey [chayk-ul ilk-tolok] **coyonghi**
Mother-HNom child-Dat book-Acc read-Cmp quietly
seltuk.ha-si-ess-ta
persuade-Hon-Pst-Dec
'Mother quietly persuaded the child to read the book.'

(67) a. Emeni-kkeyse **coyonghi** [ai-ka chayk-ul ilk-ess-ta-ko]
Mother-HNom quietly child-Nom book-Acc read-Pst-Dec-Quot
malssum.ha-si-ess-ta
say-Hon-Pst-Dec
'Mother quietly said that the child read the book.'

b. Emeni-kkeyse [ai-ka chayk-ul ilk-ess-ta-ko] **coyonghi**
Mother-HNom child-Nom book-Acc read-Pst-Dec-Quot quietly
malssum.ha-si-ess-ta
say-Hon-Pst-Dec
'Mother quietly said that the child read the book.'

The S and VP complement sentences have shown us nothing unusual about the position before the matrix verb. Any matrix element, can occur in this position, whether it be the matrix subject, a matrix adverb, or, in the case of a VP complement, the lower subject. In the previous causative examples in this section, we saw that the lower subject could not occur directly before the matrix causative verb, regardless of whether other scrambling facts indicated that the lower subject was indeed a matrix element. Since the non-disputed matrix elements of the matrix subject and matrix adverbs occur in this position for regular S and VP complement verbs, it is important to determine the behavior of these non-disputed matrix elements in causatives. This behavior will show us whether the impossibility of scrambling the lower subject is due to a particular property of the lower subject, or due to some characteristic of the position before the matrix verb.

What the causative data does show us is that no matrix elements at all can occur in the position before the matrix verb and after the lower verb. Just as for the dative and accusative causees, which are expected to be matrix elements, the matrix subject and matrix adverbs cannot occur in this position. (68) gives examples showing that the matrix subject *emeni-kkeyse* 'mother-HNom' cannot occur between the lower verb *ilk-key* 'read-Adv' and the causative verb *ha-si-ess-ta*. Similarly, (69) gives examples showing that the matrix adverb *coyonghi* 'quietly' cannot occur in this position, either.

(68) a. *Ai-<u>eykey</u> chayk-ul ilk-key **emeni-kkeyse** ha-si-ess-ta
child-<u>Dat</u> book-Acc read-Adv mother-HNom do-Hon-Pst-Dec
'Mother made the child read the book.'

b. *Ai-lul chayk-ul ilk-key **emeni-kkeyse** ha-si-ess-ta
child-Acc book-Acc read-Adv mother-HNom do-Hon-Pst-Dec
'Mother made the child read the book.'

c. *Ai-ka chayk-ul ilk-key **emeni-kkeyse** ha-si-ess-ta
child-Nom book-Acc read-Adv mother-HNom do-Hon-Pst-Dec
'Mother made the child read the book.'

(69) a. * Emeni-kkeyse ai-eykey chayk-ul ilk-key **coyonghi** ha-si-ess-ta
mother-HNom child-Dat book-Acc read-Adv quietly do-Hon-Pst-Dec
'Mother quietly made the child read the book.'

b. * Emeni-kkeyse ai-lul chayk-ul ilk-key **coyonghi** ha-si-ess-ta
mother-HNom child-Acc book-Acc read-Adv quietly do-Hon-Pst-Dec
'Mother quietly made the child read the book.'

c. *Emeni-kkeyse ai-ka chayk-ul ilk-key **coyonghi**
mother-HNom child-Nom book-Acc read-Adv quietly
ha-si-ess-ta
do-Hon-Pst-Dec
'Mother quietly made the child read the book.'

The facts about scrambled items never occurring in this position is precisely what leads Gerdts (1986, 1990) to give all periphrastic causatives, including those with nominative causees as well as those with dative and accusative causees, the same structure. However, she does not discuss the contrast in scrambling behavior between the causatives with nominative causees and the causatives with dative and accusative causees with respect to their NP arguments. While the unexpectedly similar behavior of the lower verb in the two types of causatives does not follow from the structures I have been developing, it is possible to include an additional restriction on the entire S complement in causatives with nominative causees. Adding a restriction on the causee and NP arguments would be more difficult, since it involves restricting the order of particular NP arguments based not on the head verb they occur with, or any properties of these NPs themselves, but on the fact that the verb which subcategorized for them appears in a causative construction. This kind of indirect relation between the effect of the restriction and the conditions necessary for it to apply seems less appealing than the direct relation between a causative auxiliary and the S complement with a nominative causee, which the auxiliary subcategorizes for.

In looking at the scrambling behavior of the causatives as distinct from that of the S and VP complements, it is important also to consider a claim made in the literature that S and VP complements do not have the same scrambling behavior. N. Kim (1982) presents this claim as part of a paper arguing that complements whose verbs end in the complementizer suffixes *-ki* and *-tolok* are better analyzed as VP complements than S complements with Equi NP Deletion, due to properties distinguishing VP from S complements. The scrambling data he gives to support this position concerns the possibility of elements occurring between the S or VP complement and the matrix verb.

Kim shows that the matrix subject can occur between an S complement and the matrix verb, as in his example (70).

(70) a. John-un [Mary-ka cip-ey ka-ki-lul] palay-ss-ta
John-Top Mary-Nom home-Dir go-Cmp-Acc hope-Pst-Dec
'John hoped that Mary would go home.'

b. [Mary-ka cip-ey ka-ki-lul] John-un palay-ss-ta
Mary-Nom home-Dir go-Cmp-Acc John-Top hope-Pst-Dec
'John hoped Mary would go home.'

He contrasts this possible scrambling in (70) with the impossibility of similar scrambling with a subjectless complement, as in his example (71). In order to avoid any interference from principles governing the possible coreference of unexpressed elements and full NPs, especially with respect to their order, I add an additional example in support of the contrast Kim means to show. (72) shows that a matrix adverb in the position between the VP complement and the matrix verb also yields an ungrammatical sentence.

(71) a. John-un [cip-ey ka-ki] wen.hay-ss-ta
John-Top home-Dir go-Cmp want-Pst-Dec
'John wanted to go home.'

b. ?[Cip-ey ka-ki] John-un wen.hay-ss-ta
home-Dir go-Cmp John-Top want-Pst-Dec
'John wanted to go home.'

(72) ?*John-un [cip-ey ka-ki] taytanhi wen.hay-ss-ta
John-Top home-Dir go-Cmp very much want-Pst-Dec
'John very much wanted to go home.'

The claim that VP complements cannot be separated from the matrix verb is directly contradictory to the claim I have made earlier in this and previous sections, that VP complements are ordered freely. Thus, it is important to investigate his examples to see what makes them different from the examples I presented earlier. An important point to notice is that Kim includes the accusative case marker *-lul* on the lower verb *ka-ki-lul* 'go-Cmp-Acc' in his S complement examples in (70), but not on the lower verb *ka-ki* 'go-Cmp' in his VP complement examples in (71). If the accusative marker *-lul* is included in his VP complement examples, then all of the orders are perfectly grammatical, as shown in (73).

(73) a. John-un [cip-ey ka-ki-**lul**] wen.hay-ss-ta
John-Top home-Dir go-Cmp-**Acc** want-Pst-Dec
'John wanted to go home.'

b. [Cip-ey ka-ki-**lul**] John-un wen.hay-ss-ta
home-Dir go-Cmp-**Acc** John-Top want-Pst-Dec
'John wanted to go home.'

c. John-un [cip-ey ka-ki-**lul**] taytanhi wen.hay-ss-ta
John-Top home-Dir go-Cmp-**Acc** very much want-Pst-Dec
'John very much wanted to go home.'

Furthermore, if the accusative marker *-lul* is omitted from Kim's S complement examples, then Kim's S complement examples have the same judgments as his VP complement examples, as seen in (74).

(74) a. John-un [Mary-ka cip-ey ka-ki] palay-ss-ta
John-Top Mary-Nom home-Dir go-Cmp hope-Pst-Dec
'John hoped that Mary would go home.'

b. *[Mary-ka cip-ey ka-ki] John-un palay-ss-ta
Mary-Nom home-Dir go-Cmp John-Top hope-Pst-Dec
'John hoped Mary would go home.'

Thus, for the examples Kim gave, the difference in scrambling behavior appears dependent on the appearance or non-appearance of the accusative marker *-lul* on the lower verb, rather than the appearance or non-appearance of a lower subject.

For some speakers, the correspondence is not perfect, however. I included (72) above to show that a matrix adverb could not appear between the bare lower verb and the matrix verb in a VP complement. In a corresponding S complement version with a bare lower verb, the matrix adverb can occur, as seen in (75).

(75) John-un [Mary-ka cip-ey ka-ki] taytanhi palay-ss-ta
John-Top Mary-Nom home-Dir go-Cmp very.much hope-Pst-Dec
'John very much hoped Mary would go home.'

I do not have an explanation for this difference, but I believe that the contrast in scrambling behavior between S and VP complements as laid out by N. Kim (1982) is not as strong as the contrast between accusative-marked and non-case-marked complements with the *-ki* complementizer. Indeed, for other speakers, (75) is ungrammatical, while the addition of accusative case on the lower verb in the S complement makes the sentence grammatical, as in (76).

(76) John-un [Mary-ka cip-ey ka-ki-**lul**] taytanhi palay-ss-ta
John-Top Mary-Nom home-Dir go-Cmp-**Acc** very.much hope-Pst-Dec
'John very much hoped Mary would go home.'

As a matter of speculation, the importance of case marking in these sentences may be due to the fact that the complementizer *-ki* is also used as a nominalizer, productively and also in lexicalized forms like *poki* 'example', derived from *po* 'see' plus *-ki*. In contrast, complementizers like *-tolok*, *-ko*, and *-key*, as in the S, VP, and causative examples discussed above, are never used as nominalizers. When an S or VP complement ends in a complementizer which is homophonous with a nominalizer, case marking may lead speakers to reanalyze the form, and strengthen their own lexical association of the head verb with a similar noun form. As a result, linear precedence rules may be able to distinguish between the S and VP complements which appear closer to nouns and the S and VP complements which appear purely as verbs.

Because of the determining role of case marking in the ordering possibilities of S and VP complements, these examples do not support Kim's claim that the structural differences between VP and S produce a difference in scrambling away from the matrix verb. These examples do raise the question of whether case marking on the lower verb affects the scrambling behavior of the causative lower complement. The data presented below shows us that the appearance or non-appearance of case marking on the lower verb in causative sentences does not contribute at all to its scrambling behavior. All of the ungrammatical examples given above remain ungrammatical when the accusative *-lul* is added to the lower verb, giving *ilk-key-lul* 'read-Cmp-Acc'. (77) demonstrates this for causative sentences in which the matrix subject *emeni-kkeyse* 'mother-HNom' appears between the lower verb and the causative matrix verb *ha-si-ess-ta* 'do-Hon-Pst-Dec'. (78) demonstrates the same point for causative sentences in which the matrix adverb *coyonghi* 'quietly' appears in this position, and contributes the corresponding data for the lower subject *ai-eykey/-lul/-ka* also between the lower verb and matrix verb. In all three types of example, the addition of the accusative case marking does not improve the sentence, and causatives still require the lower verb to occur adjacent to the matrix verb *ha-si-ess-ta* 'do-Hon-Pst-Dec'.

(77) a. *Ai-eykey chayk-ul ilk-key-lul **emeni-kkeyse** ha-si-ess-ta
child-Dat book-Acc read-Adv-Acc mother-HNom do-Hon-Pst-Dec
'Mother made the child read the book.'

b. *Ai-lul chayk-ul ilk-key-lul **emeni-kkeyse** ha-si-ess-ta
child-Dat book-Acc read-Adv-Acc mother-HNom do-Hon-Pst-Dec
'Mother made the child read the book.'

c. *Ai-ka chayk-ul ilk-key-lul **emeni-kkeyse** ha-si-ess-ta
child-Dat book-Acc read-Adv-Acc mother-HNom do-Hon-Pst-Dec
'Mother made the child read the book.'

(78) a. *Emeni-kkeyse ai-eykey chayk-ul ilk-key-lul **coyonghi**
mother-HNom child-Dat book-Acc read-Adv-Acc quietly
ha-si-ess-ta
do-Hon-Pst-Dec
'Mother made the child read the book.'

b. *Emeni-kkeyse ai-lul chayk-ul ilk-key-lul **coyonghi**
mother-HNom child-Acc book-Acc read-Adv-Acc quietly
ha-si-ess-ta
do-Hon-Pst-Dec
'Mother made the child read the book.'

c. *Emeni-kkeyse ai-ka chayk-ul ilk-key-lul **coyonghi**
mother-HNom child-Nom book-Acc read-Adv-Acc quietly
ha-si-ess-ta
do-Hon-Pst-Dec
'Mother made the child read the book.'

(79) a. * Emeni-kkeyse chayk-ul ilk-key-lul **ai-eykey** ha-si-ess-ta
mother-HNom book-Acc read-Adv-Acc child-**Dat** do-Hon-Pst-Dec
'Mother made the child read the book.'

b. * Emeni-kkeyse chayk-ul ilk-key-lul **ai-lul** ha-si-ess-ta
mother-HNom book-Acc read-Adv-Acc child-**Acc** do-Hon-Pst-Dec
'Mother made the child read the book.'

c. * Emeni-kkeyse chayk-ul ilk-key-lul **ai-ka** ha-si-ess-ta
mother-HNom book-Acc read-Adv-Acc child-**Nom** do-Hon-Pst-Dec
'Mother made the child read the book.'

J. O. Cho (1988) also makes the observation that the case marking does not give the first part of a verbal complex any greater freedom with respect to interruptions or scrambling. Her examples are given below, and her judgments of this contrast have been supported among my Korean consultants.

(80) a. Nay-ka kulim-ul kuli-e-lul po-myen
I-Nom picture-Acc draw-Cmp-Acc try-if
'If I try to draw a picture'

b. *Nay-ka kuli-e-lul amato po-myen
I-Nom draw-Cmp-Acc probably try-if

c. *Nay-ka kuli-e-lul kulim-ul po-myen
I-Nom draw-Cmp-Acc picture-Acc try-if

Thus, we need not revise our earlier position in light of the claim or the data from N. Kim (1982). VP complements and S complements scramble away from the matrix verb, while causatives do not. While case marking on the lower verb appears to be important for verbally-headed complements with the complementizer *-ki*, it does not appear to play a role in the other verbally-headed complements we have examined.

We can now conclude that causatives, regardless of the case marking on the causee, have unusual behavior with respect to the position of the lower verb and the matrix verb. For the causatives with dative and accusative causees, this behavior is only part of the body of contrasts with the behavior of ordinary S and VP complement sentences. The causatives with nominative causees have elsewhere behaved like ordinary S complement sentences, but in this respect they have behaved distinctly. The similarity of all causative sentences in this respect led Gerdts (1986, 1990) to give them all the same structural analysis; I prefer to provide a separate account for this similar behavior, and to give the causatives with dative and accusative causees a very different structure from the causatives with nominative causees in accordance with their differences in terms of the scrambling behavior of their NP arguments.

2.3.1.5 Scrambling and Negative Polarity

I now turn to scrambling data involving negative polarity items in particular. Looking only at the ordering of regular NPs in complex sentences may not show clear patterns for all Korean speakers, since there appears to be considerable variation on how freely topicalization applies, and on the acceptability of some non-canonical orderings. Because topicalization will give rise to sentences with elements separated from their clauses, while scrambling does not, using negative polarity items in disputed positions gives us a way to show a contrast in grammaticality based on whether an element is within a negative clause or not.

VP complement sentences and causative sentences show an important contrast in the acceptability of the negative polarity item *amwukes-to* 'anything' in fronted position.[13] The VP complement sentence in (81) has a lower clause negated by the pre-verbal negation particle *an*.[14] Fronting the lower object and negative polarity item *amwukes-to* 'anything' leads to an ungrammatical sentence, because this item has to be topicalized out of the negative lower clause to occur in this fronted position.

(81) a. Emeni-kkeyse John-eykey **amwukes-to an** ilk-tolok
mother-HNom John-Dat anything-even not read-Adv
seltuk.ha-si-ess-ta
persuade-Hon-Pst-Dec
'Mother persuaded John not to read anything.'

b. ?***Amwukes-to** emeni-kkeyse John-eykey **an** ilk-tolok
anything-even mother-HNom John-Dat not read-Adv

[13] I thank Yookyung Kim (p.c.) for providing the data and main argument of this subsection, and Young-mee Yu Cho for providing the additional data and argument.

[14] Some speakers find the sentences in this section better with the negative particle *mos* rather than *an*.

seltuk.ha-si-ess-ta
persuade-Hon-Pst-Dec
'Mother persuaded John not to read anything.'

In a semantically similar causative sentence such as (82), the lower object and negative polarity item *amwukes-to* 'anything' can be fronted without the ungrammaticality seen in the VP complement sentence above. The negative marker *an* occurs before the lower verb *ilk-key* in this sentence, completely parallel to the VP complement sentence.

(82) a. Emeni-kkeyse John-eykey **amwukes-to an** ilk-key ha-si-ess-ta
mother-HNom John-Dat anything-even not read-Adv do-Hon-Pst-Dec
'Mother made John not read anything.'

b. **Amwukes-to** emeni-kkeyse John-eykey **an** ilk-key ha-si-ess-ta
anything-even mother-HNom John-Dat not read-Adv do-Pst-Dec
'Mother made John not read anything.'

The possibility of having a negative polarity item as a lower object when the matrix verb is negated, instead of the lower verb as in the preceding examples, varies from speaker to speaker. In one pattern of judgments, the negative polarity item must be in the same clause as the negated verb, making the VP complement sentence in (83) and the nominative causee causative sentence in (84) ungrammatical, while the dative causee and accusative causee causatives in (85) are grammatical.

(83) *Emeni-kkeyse John-eykey **amwukes-to** ilk-tolok seltuk.ha-si-**ci**
mother-Nom John-Dat anything-even read-Adv persuade-Hon-Cmp
anh-ass-ta
NegAux-Pst-Dec
'Mother didn't persuade John to read anything.'

(84) ?*Emeni-kkeyse John-i **amwukes-to** ilk-key ha-si-**ci**
mother-Nom John-Nom anything-even read-Adv do-Hon-Cmp
anh-ass-ta
NegAux-Pst-Dec
'Mother didn't make John read anything.'

(85) a. Emeni-kkeyse John-eykey **amwukes-to** ilk-key ha-si-**ci**
mother-Nom John-Dat anything-even read-Adv do-Hon-Cmp
anh-ass-ta
NegAux-Pst-Dec
'Mother didn't make John read anything.'

b. Emeni-kkeyse John-ul **amwukes-to** ilk-key ha-si-**ci**
mother-Nom John-Acc anything-even read-Adv do-Hon-Cmp
anh-ass-ta
NegAux-Pst-Dec
'Mother didn't make John read anything.'

A second pattern of judgments does permit negative polarity items to occur in lower clauses when a higher verb is negated. In this dialect, the fronted, topicalized lower object is only slightly less grammatical for the VP complement sentence in (86) than for the causative sentence in (87).

(86) a. Emeni-ka John-eykey **amwukes-to** ilk-tolok seltuk.ha-**ci**
mother-Nom John-Dat anything-even read-Adv persuade-Cmp
anh-ass-ta
NegAux-Pst-Dec
'Mother didn't persuade John to read anything.'

b. ?**Amwukes-to** emeni-ka John-eykey ilk-tolok seltuk.ha-**ci**
anything-even mother-Nom John-Dat read-Adv persuade-Cmp
anh-ass-ta
NegAux-Pst-Dec
'Mother didn't persuade John to read anything.'

(87) a. Emeni-ka John-eykey **amwukes-to** ilk-key ha-**ci**
mother-Nom John-Dat anything-even read-Adv do-Cmp
anh-ass-ta
NegAux-Pst-Dec
'Mother didn't make John read anything.'

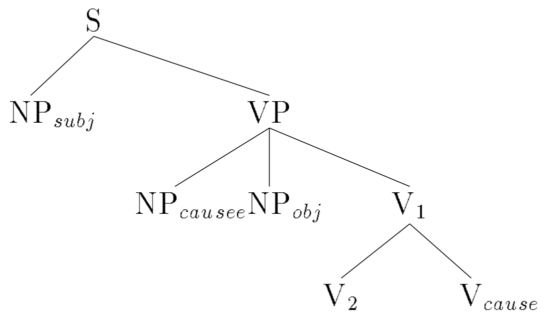
b. **Amwukes-to** emeni-ka John-eykey ilk-key ha-**ci**
anything-even mother-Nom John-Dat read-Adv do-Cmp
anh-ass-ta
NegAux-Pst-Dec
'Mother didn't make John read anything.'

While the additional word orderings produced by topicalization may interfere with seeing a clear distinction between scrambling of VP complement sentences and causative sentences in some dialects, the differences seen here in the possible locations of negative polarity items demonstrate that causatives show clause-internal scrambling where superficially parallel VP complement sentences show topicalization out of a lower clause into a higher one.

2.3.1.6 Concluding Scrambling Distinguishes Causatives

The facts just discussed indicate that the causative does not pattern with either the S or VP complement structures. We have seen no reason to assign different structures to causatives with dative and accusative causees, and we have seen no evidence for a clause boundary in the causative. Furthermore, the content verb does not scramble away from the causative verb. A structure which does predict all of the above facts is given in (88).

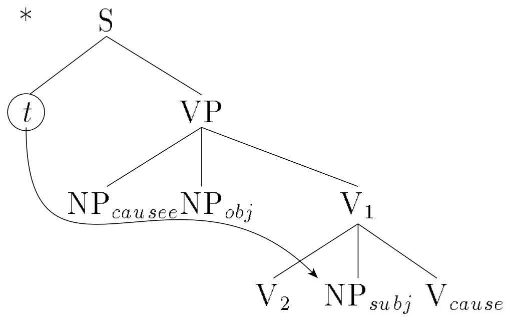
(88) Causative: canonical order



The inseparability of the causative verb and the content verb results from their forming a constituent. This kind of verbal complex has also been proposed by Y. Kang (1986) for the causative with an accusative causee only, and Y. Lee (1988) for both accusative and dative causees, and by J. Cho (1988), C. Chung (1991), Sells (1991), and Sells and Cho (1991) for causatives among other auxiliary verbs.

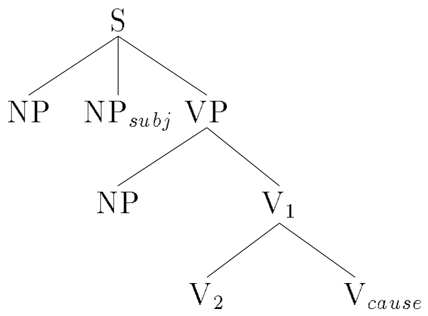
(89) gives a tree illustrating the ungrammatical scrambled example in (68b).

(89) Causative: scrambled order

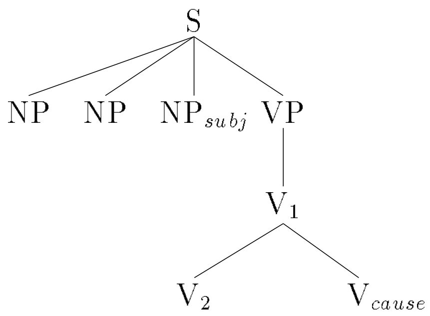


The matrix subject (or causer) is expected to be able to occur between the lower subject (or causee) and the other lower arguments, and the matrix subject is also expected to be able to occur between the content verb and its object. Trees illustrating these scrambling possibilities, from examples (39) and (48), are given in (90) and (91).

(90) Causative: scrambled order



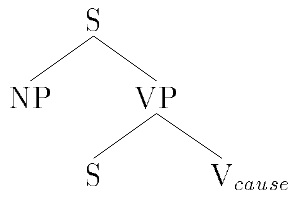
(91) Causative: scrambled order



My analysis gives the sentences with nominative causees the structure of a sentence with a complement clause, where all lower arguments and adjuncts are dominated by the lower S and consequently do not interact with higher arguments in scrambling, This is the same kind of structure as in the S complement examples given earlier, with *malssum.ha-si-ta* 'say' (honorific) or *mal.ha-ta* 'say' plus a sentential complement. The following tree illustrates the basic structure for embedding causatives.[15]

[15]Recall that an extra restriction is necessary to prevent the matrix subject from scrambling to the position between the S complement and the matrix verb. An ungrammatical example of this kind of scrambling was given in (68c).

(92) Embedding Causative: canonical order



2.3.2 Adverbial Case Marking

Restrictions on the possible case marking of adverbials provide a second type of evidence for the constituent structure of the causative which I have argued for, by reflecting the constituent structure sisterhood of the verbal complex, headed by the causative verb, and elements which semantically belong to the lower verb.

2.3.2.1 Basic Facts of Adverbial Case Marking

In Korean, duration and frequency adverbs can optionally bear either nominative or accusative case, as in Y.-S. Lee and Wechsler's (1993) examples in (93) and Maling's (1989) example in (94).

(93) a. Tom-un kongpwu-lul **twu-sikan-tongan-ul** hay-ss-ta
Tom-Top study-Acc two-hour-during-Acc do-Pst-Dec
'Tom studied for two hours.'

b. Tom-un mikwuk-ul **twu-pen-ul** pangmwun.hay-ss-ta
Tom-Top America-Acc two-time-Acc visit-Pst-Dec
'Tom visited America two times.'

(94) Mwun-i **han-sikan-tongan-i** yel-ie iss-ta
door-Nom one-hour-during-Nom open-Pass be-Dec
'The door remained open for an hour.'

Y. Kim (1990a:293) notes that adverbial case differs from nominal case in its relation to formality of speech and omissibility. Adverbials with case marking are more colloquial than those without it, while argument NPs without overt case marking are generally more colloquial than NPs with case marking. This difference means that the case marking on adverbials appears to be a distinct phenomenon within the grammar from the more ordinary kind of case marking.[16] Y.-S. Lee and Wechsler (1993) also support this split between these forms of accusative case marking, describing accusative case on NP arguments as governed by syntactic conditions, while accusative case on adverbials follows from semantic terms.[17]

I am aware of two very different generalizations about when adverbials can bear nominative case and when they can bear accusative case. K. Hong (1991b:265) states that accusative case marking is always possible, while nominative case marking is possible only when the verb is non-agentive. She gives the following examples.

(95) involves the agentive verb *talli-ta* 'run', and permits only accusative and not nominative case on the adverbial *han sikan-tongan* 'for an hour'.

(95) a. Swuni-ka han sikan-tongan-**ul** talli-ess-ta
Swuni-Nom one hour-for-Acc run-Pst-Dec
'Swuni ran for an hour.'

b. *Swuni-ka han sikan-tongan-**i** talli-ess-ta
Swuni-Nom one hour-for-Nom run-Pst-Dec
'Swuni ran for an hour.'

Since rain cannot be an agent in its falling, (96) involves both accusative and nominative case possibilities on the adverbial for Hong.

(96) a. Pi-ka han sikan-tongan-**ul** o-ass-ta
rain-Nom one hour-for-Acc come-Pst-Dec
'It rained for an hour.'

[16] In support of the position that the case on adverbial phrases is standard structural Case, Maling (1989:307 fn.13) mentions examples from Finnish, Warlpiri, and Warumungu of adverbs which participate in case alternations.

[17] Wechsler and Y.-S. Lee (1996:635–637) argue that accusative on both adverbials and arguments in Korean is assigned through the same process of direct case assignment; however, they do not include accusative on duration adverbials in this generalization concerning accusative on multiplicative ("frequency", in my terms) and distance adverbials. They posit a distinct "semantic accusative" for duration adverbials.

b. Pi-ka han sikan-tongan-**i** o-ass-ta
rain-Nom one hour-for-Nom come-Pst-Dec
'It rained for an hour.'

The lexical passive in (97) and the periphrastic passive in (98) both necessarily involve non-agentive subjects, and for Hong, both accusative and nominative case are possible on the adverbial in these sentences.

(97) a. Chayk-i han sikan-tongan-**ul** ilk-hi-ess-ta
book-Nom one hour-for-**Acc** read-Pass-Pst-Dec
'The book was read for one hour.'

b. Chayk-i han sikan-tongan-**i** ilk-hi-ess-ta
book-Nom one hour-for-**Nom** read-Pass-Pst-Dec
'The book was read for one hour.'

(98) a. Chayk-i han sikan-tongan-**ul** ilk-e ci-ess-ta
book-Nom one hour-for-**Acc** read-Cmp PasAux-Pst-Dec
'The book was read for one hour.'

b. Chayk-i han sikan-tongan-**i** ilk-e ci-ess-ta
book-Nom one hour-for-**Nom** read-Cmp PasAux-Pst-Dec
'The book was read for one hour.'

In contrast, Maling (1989) argues that optional accusative case marking is possible only on adverbs in non-stative clauses, and optional nominative case marking is possible only in stative clauses, based on examples like those given below.[18]

[18]S. Kim and Maling (1993) provide a more complex characterization of the case marking on frequency adverbials, while Y.-S. Lee and Wechsler (1993) describe additional semantic properties beyond stativity which must hold of a sentence in order for accusative case to be possible on an adverbial. Because the additional information provided by these papers does not directly bear on my arguments, I will continue to use the simpler generalization of stativity in my discussion. I also note that there appear to be dialect differences between speakers on the additional semantic restrictions proposed by Lee and Wechsler; they describe accusative case as much less acceptable on adverbials expressing an indefinite length of duration, such as *myech-sikan-tongan-ul* 'for several hours-Acc', while my consultants have accepted such sentences.

The contrast in the examples is given by the non-stative verb *ilk-ta* 'read' and the stative verb *kippu-ta* 'be happy'. The stativity of verbs is reflected grammatically in several ways: statives do not have perfective participles, statives and non-statives differ in the suffix for present participles (*-n* vs. *-nun*), and statives do not take tense markers in declarative mood (Vandesande 1968). There is also a rough, but not perfect correlation, between stativity and the form of locative case marking. Statives generally take locatives marked with *-ey* and non-statives usually take locatives marked with *-eyse* (Vandesande 1968, Young-mee Yu Cho p.c.). These grammatical reflections of stativity provide a way to independently check the stativity of the verbs used here.

(99) shows that accusative case can occur on the duration adverbial *sey sikan-tongan-ul* 'for three hours' when it modifies the non-stative verb *ilk-ess-ta* 'read', but not when it modifies the stative verb *kipp-ess-ta* 'were happy'.

(99) a. Chelswu-ka chayk-ul sey sikan-tongan-**ul** ilk-ess-ta
Chelswu-Nom book-Acc three hour-during-Acc read-Pst-Dec
'Chelswu read books for three hours.'

b. * Haksayng-tul-i myech-sikan-**ul** kipp-ess-ta
Student-Plur-Nom several-hour-Acc be.happy-Pst-Dec
'The students were happy for several hours.'

(100) shows that the duration adverb *sey sikan-tongan-i* 'for three hours' cannot bear nominative case when it modifies the non-stative verb *ilk-ess-ta* 'read', but only when it modifies the stative verb *kipp-ess-ta* 'were happy'.

(100) a. *Chelswu-ka chayk-ul sey sikan-tongan-**i** ilk-ess-ta
Chelswu-Nom book-Acc three hour-during-Nom read-Pst-Dec
'Chelswu read books for three hours.'

b. Haksayng-tul-i myech-sikan-**i** kipp-ess-ta
Student-Plur-Nom several-hour-Nom be.happy-Pst-Dec
'The students were happy for several hours.'

Maling argues that the stativity of the verb is the determining factor as to which case marking is possible, rather than the presence of an agent, since passive sentences have the same adverbial case marking properties as the corresponding active sentences. (101) shows a passive of a non-stative verb, which still permits only accusative marking on the adverbial, and not nominative marking.

(101) a. Chayk-i han sikan-tongan-**ul** ilk-e ci-ess-ta
book-Nom one hour-during-Acc read-Cmp PasAux-Pst-Dec
'The book was read for an hour.'

b. *Chayk-i han sikan-tongan-**i** ilk-e ci-ess-ta
book-Nom one hour-during-Nom read-Cmp PasAux-Pst-Dec
'The book was read for an hour.'

Because Maling's account rules out the possibility of accusative case on adverbs in stative clauses, while Hong's account always permits accusative, it appears likely that there is a dialect difference on this point. A complete account of this phenomenon may well incorporate aspects of both agentivity and stativity; however, for my current purposes, I will assume that stativity is the determining factor for adverbial case marking. The speakers I have worked with have agreed with Maling's judgments, and I have found the possibility of accusative case on adverbials more limited than Hong's account would suggest.

2.3.2.2 Adverbials in Causatives

The evidence about constituent structure provided by adverbial case marking can be seen in examples with a causative of a stative verb. Because the causative auxiliary is non-stative, this kind of example involves two verbs of differing stativity, which can each be modified by adverbials.

In the constituent structure of the causative, there is no structural distinction between adverbs modifying the causative relation and adverbs modifying the lower verb's semantic relation. Thus we can have sentences like (102), where an adverb is ambiguous between readings where it modifies the higher relation or the lower relation. We can also have sentences like (103), where there are two different time adverbs, modifying the time of causation and the time of the lower verb's action. (Shibatani 1973a, E. Cho 1987, Patterson 1974, Song 1988).

(102) Pak-ssi-nun ai-eykey namwu-ey **twu-son-ulo** olu-key hay-ss-ta
Park-Mr.-Top child-Dat tree-Dir two-hand-Inst go.up-Adv do-Pst-Dec
'Mr. Park made the child go up the tree with both hands.'

(103) **Ecey** na-nun Inho-lul **onul** hankwuk-ulo ttena-key hay-ss-ta
yesterday I-Top Inho-Acc today Korea-to leave-Adv do-Pst-Dec
'Yesterday I made Inho leave for Korea today.'

Thus we can expect to see duration and frequency adverbs and locative adverbs which modify the causation relation and the lower verb's relation.

If the case on the adverbials resulted from a simple specification in the verb's lexical entry, we would expect to see nominative case on adverbials modifying the stative verb and accusative case on adverbials modifying the non-stative verb. This would predict the existence of sentences with adverbials of both cases, as in (104), and minimal pairs where a contrast between nominative and accusative case corresponded to a contrast in which verb was modified by the adverbial, as in (105).

These predicted sentences do not match the facts of Korean. (104) is ungrammatical, so we do not get the expected differentiation by case marking of the adverbs based on which verb they modify.

(104) *Nolay.ha-nun sensayngnim-kkeyse twu-pen-**ul** haksayng-tul-ul
sing-Pres teacher-HNom two-time-Acc student-Plur-Acc
sey-sikan-tongan-**i** kippu-key ha-si-ess-ta
three-hour-during-Nom be.happy-Cmp do-Hon-Pst-Dec
'The singing teacher twice made the students happy for three hours.'

Similarly, (105) does not show us a minimal pair, with case marking and modified verbs corresponding neatly. The nominative-marked adverb in (105b) is ungrammatical, and the accusative-marked adverb in (105a) modifies the lower clause, according to my consultants' judgments.

(105) a. Sensayngnim-kkeyse hyukang ha-si-n sasil-i haksayng-tul-ul
Teacher-HNom skip.lecture do-Hon-Pst fact-Nom student-Plur-Acc
myech-sikan-**ul** [kippu-key ha-si-ess-ta]
several-hour-Acc be.happy-Adv do-Hon-Pst-Dec
'The fact that the teacher skipped lecture made the students happy for several hours.'

b. *Sensayngnim-kkeyse hyukang ha-si-n sasil-i haksayng-tul-ul
Teacher-HNom skip.lecture do-Hon-Pst fact-Nom student-Plur-Acc
myech-sikan-**i** [kippu-key ha-si-ess-ta]
several-hour-Nom be.happy-Adv do-Hon-Pst-Dec
'The fact that the teacher skipped lecture made the students happy for several hours.'

Instead of corresponding to the lexical specifications of the verb they modify, duration and frequency adverbials in causative sentences, take only optional accusative marking, and not nominative marking. The sentences in (106) and (107) complete the picture, with an accusative-marked frequency adverb modifying the higher clause in (106), and accusative-marked adverbs modifying both the higher clause and the lower clause within the same sentence in (107).

(106) Nolay.ha-nun sensayngnim-kkeyse twu-pen-**ul** haksayng-tul-ul
sing-Pres teacher-HNom two-times-Acc student-Plur-Acc
kippu-key ha-si-ess-ta
be.happy-Cmp do-Hon-Pst-Dec
'The singing teacher twice made the students happy.'

(107) Nolay.ha-nun sensayngnim-kkeyse twu-pen-**ul** haksayng-tul-ul
sing-Pres teacher-HNom two-times-Acc student-Plur-Acc
sey-sikan-tongan-**ul** kippu-key ha-si-ess-ta
three-hours-during-Acc be.happy-Cmp do-Hon-Pst-Dec
'The singing teacher twice made the students happy for three hours.'

Instead of different case markings reflecting the stativity of the modified verb, identical case marking is given to all adverbials in the causative. The case marking patterns just observed are explained if the adverbial case marking rule involves the stativity of the verb, or verbal complex, which the adverb is sister to in constituent structure, instead of the verb it semantically modifies.

2.3.2.3 Biclausal Examples

We might think that the accusative marking on adverbs modifying a stative verb comes from the fact that these are statives which are coerced into an inchoative sense by occurring in a causative. To rule out this possibility, we can look at semantically similar biclausal examples. (108) shows that even when the main clause describes an action intended to cause a state described in a lower clause, biclausal examples do not permit the semantic sense to overrule the case marking expected from the stativity of the modified verb. The nominative marking on the adverbial in (108a) corresponds to the stative verb it modifies, and the impossibility of accusative marking in (108b) is exactly what we would expect.

(108) a. ?Haksayng-tul-i cwu-mal-tongan-**i** kippu-tolok
student-Plur-Nom week-end-during-Nom be.happy-in.order.that
sensayngnim-kkeyse kumyoil-ey swukcey-lul an nay-si-ess-ta
teacher-HNom Friday-on homework-Acc not assign-Hon-Pst-Dec
'In order for the students to be happy during the weekend, the teacher did not assign homework Friday.'

b. *Haksayng-tul-i cwu-mal-tongan-**ul** kippu-tolok
student-Plur-Nom week-end-during-Acc be.happy-in.order.that
sensayngnim-kkeyse kumyoil-ey swukcey-lul an nay-si-ess-ta
teacher-HNom Friday-on homework-Acc not assign-Hon-Pst-Dec
'In order for the students to be happy during the weekend, the teacher did not assign homework Friday.'

2.3.2.4 Accusative vs. Nominative Causees

Because the scrambling data suggest a split between the causatives with dative and accusative causees and the causatives with nominative causees in terms of clause structure, we can set up sentences which vary only minimally. Changing the case on the causee alone should result in different structures for the same string of words. Since most of the Korean native speakers I have consulted do not permit dative case on the causee in these sentences,[19] I will be using only accusative case, and not dative case, to represent the monoclausal causatives in these examples.

Since the causee will be part of the lower clause under an analysis with a lower S complement, if the adverb occurs after the causee, it will be occurring in the midst of the lower clause. Because my analysis, based on the scrambling facts, claims that causatives with dative and accusative causees are monoclausal while causatives with nominative causees are biclausal, it predicts that an adverbial after a dative or accusative causee is still part of the matrix clause, while an adverbial after a nominative causee is part of the lower embedded clause.

(109) shows that an adverb occurring after an accusative causee may be marked accusative. In contrast, (110) shows that an adverb occurring after a nominative causee cannot be marked accusative. Since the verb *kippu-* 'be happy' is stative, it does not ordinarily license accusative marking. Thus, an analysis in which the adverb placed after the nominative causee is necessarily in the complement clause and not in the causative clause explains the impossibility of accusative marking in (110).

(109) Nolay.ha-nun sensayngnim-kkeyse haksayng-tul-**ul** han-sikan-tongan-**ul**
sing-Pres teacher-HNom student-Plur-**Acc** one-hour-during-**Acc**
kippu-key ha-si-ess-ta
be.happy-Cmp do-Hon-Pst-Dec
'The singing teacher made the students happy for an hour.'

(110) *Nolay.ha-nun sensayngnim-kkeyse [haksayng-tul-**i** han-sikan-tongan-**ul**
sing-Pres teacher-HNom student-Plur-**Nom** one-hour-during-**Acc**

[19] Dative case is ungrammatical on a causee which does not have control over the caused action. Experiencing an emotion, as described by a bare psych verb such as *kippu-ta* 'be happy' is not considered controllable, in contrast to the controllable, non-stative action of showing signs of an emotion, as described by the complex form of psych verb *kipp-e ha-ta* 'show outward signs of being happy' (Young-joo Kim 1990b).

kippu-key] ha-si-ess-ta
be.happy-Cmp do-Hon-Pst-Dec
'The singing teacher made the students happy for an hour.'

The discussion so far has been of adverbial case marking facts which clearly support my position, because the adverbial case distribution in causatives falls out from the constituent structure contrast between adverbs sister to a verbal complex and adverbs sister to an embedded verb. I have collected more data on this matter which makes the generalization about adverbial case less clear, but does not clearly point to any alternate analysis of the causative. Thus, I will maintain the position that overall adverbial case marking facts are in favor of the structures I have argued for, because they provide the crucial structural distinction between verbal complexes and embedded verbal complements. The additional facts concern nominative case on adverbials in causatives and accusative adverbials before nominative causees.

Since other biclausal examples have permitted nominative case on adverbials, as in (108), if the nominative causee involves an embedded clause, it should also permit nominative case on adverbials. However, this is not the case, as seen below.

(111) *Nolay.ha-nun sensayngnim-kkeyse [haksayng-tul-**i**
sing-Pres teacher-HNom student-Plur-**Nom**
han-sikan-tongan-**i** kippu-key] ha-si-ess-ta
one-hour-during-**Nom** be.happy-Cmp do-Hon-Pst-Dec
'The singing teacher made the students happy for an hour.'

A second somewhat puzzling piece of data is that, for some speakers, causatives of statives with nominative causees do permit accusative-marked adverbs if they occur before the causee. Causatives with accusative causees, as would be expected, also permit accusative-marked adverbs in this position.

This kind of example is given in (112) and (113). Here we see that the duration adverb *han-sikan-tongan* 'for one hour' in the causative clause can bear the accusative marker *-ul* regardless of whether the causee *haksayng-tul* 'students-Plur' bears the nominative *-i* or accusative *-ul*. (113) ranges from not very acceptable to completely grammatical, depending on the speaker.

(112) Nolay.ha-nun sensayngnim-kkeyse han-sikan-tongan-**ul** haksayng-tul-**ul**
sing-Pres teacher-HNom one-hour-during-**Acc** student-Plur-**Acc**
kippu-key ha-si-ess-ta
be.happy-Cmp do-Hon-Pst-Dec
'The singing teacher made the students happy for an hour.'

(113) ??Nolay.ha-nun sensayngnim-kkeyse han-sikan-tongan-**ul** [haksayng-tul-**i**
sing-Pres teacher-HNom one-hour-during-**Acc** student-Plur-**Nom**
kippu-key] ha-si-ess-ta
be.happy-Cmp do-Hon-Pst-Dec
'The singing teacher made the students happy for an hour.'

Since my position is that the case marking on the adverb reflects the head which the adverb is sister to, the constituent structure position of the adverb in (113) is the critical factor. There seem to be two possibilities: either the adverb is in the matrix clause, or it is part of the lower clause. If the adverb is in the matrix clause, then its case marking follows from the non-stativity of the matrix causative verb, but the fact that it modifies a verb in a lower clause is completely unexpected. If the adverb is in the lower clause, then perhaps it is in a position where the stativity of the verb is not the determining factor for case.

I have tried to examine topicalized adverbs to see if they would bear the case appropriate for the modified lower verb, or for the verb of the higher clause, to see if there is independent evidence for adverbs modifying lower verbs, while bearing the case appropriate for the higher verb. However, my consultants have completely rejected all topicalized adverb sentences. (114) gives the base sentences for comparison, showing that a duration adverb modifying a lower non-stative verb can be optionally marked accusative, but cannot be marked nominative.

(114) a. Na-nun ywumyenghan kyoswu-nim-kkeyse olay-tongan-ul
I-Top famous professor-Hon-HNom long.time-for-Acc
i-tayhak-eyse kaluchye o-n sasil-i coh-a-yo
this-university-at teach come-Pst fact-Nom like-Pres-End
'I like the fact that famous professors have been teaching at this university for a long time.'

b. *Na-nun ywumyenghan kyoswu-nim-kkeyse olay-tongan-i
I-Top famous professor-Hon-HNom long.time-for-Nom
i-tayhak-eyse kaluchye o-n sasil-i coh-a-yo
this-university-at teach come-Pst fact-Nom like-Pres-End
'I like the fact that famous professors have been teaching at this university for a long time.'

c. Na-nun ywumyenghan kyoswu-nim-kkeyse olay-tongan
I-Top famous professor-Hon-HNom long.time-for
i-tayhak-eyse kaluchye o-n sasil-i coh-a-yo
this-university-at teach come-Pst fact-Nom like-Pres-End
'I like the fact that famous professors have been teaching at this university for a long time.'

(115) gives corresponding examples with the adverbial fronted and separated from the lower clause by the matrix element *na-nun* 'I-Top'. None of the examples are grammatical on the reading where they modify the lower verb. (115c), with a non-case-marked adverbial, is grammatical on the reading where the adverb modifies the higher clause.

(115) a. *Olay-tongan-ul na-nun ywumyenghan kyoswu-nim-kkeyse
long.time-for-Acc I-Top famous professor-Hon-HNom
i-tayhak-eyse kaluchye o-n sasil-i coh-a-yo
this-university-at teach come-Pst fact-Nom like-Pres-End
'I like the fact that famous professors have been teaching at this university for a long time.'

b. *Olay-tongan-i na-nun ywumyenghan kyoswu-nim-kkeyse
long.time-for-Nom I-Top famous professor-Hon-HNom
i-tayhak-eyse kaluchye o-n sasil-i coh-a-yo
this-university-at teach come-Pst fact-Nom like-Pres-End
'I like the fact that famous professors have been teaching at this university for a long time.'

c. *Olay-tongan na-nun ywumyenghan kyoswu-nim-kkeyse
long.time-for I-Top famous professor-Hon-HNom
i-tayhak-eyse kaluchye o-n sasil-i coh-a-yo
this-university-at teach come-Pst fact-Nom like-Pres-End
'I like the fact that famous professors have been teaching at this university for a long time.'

Thus there is no independent evidence of adverbs appearing outside their clauses, yet the causative with a nominative causee can have an accusative-marked adverb which modifies the lower clause appearing between the elements of the matrix clause and the elements of the lower clause.

Another possible explanation for the accusative case marking in this example is that adverbs in initial position would show different case marking facts. It may be that only adverbs which are within VP show the sensitivity to the verb's stativity. Since some of my consultants do hold the simpler analysis in which the position of adverbs is irrelevant to their case marking, and thus do not find (113) grammatical, I will leave the intricacies of the more complex dialect of adverbial case marking to further research.

2.3.2.5 Adverbial Case Marking and Previous Analyses

The adverbial case marking contrast between causatives of statives with nominative and accusative causees distinguishes between several kinds of analyses of causatives, because it requires a structural distinction between the two kinds of periphrastic causatives. The adverbial case marking contrast argues against an Exceptional Case Marking (ECM) approach within Government-Binding theory for the causative with an accusative causee, since that approach would give ECM sentences the same structure as causatives with nominative causees.

This contrast also argues against the opposite direction of treating accusative and nominative causees both as monoclausal. Gerdts (1990) argues specifically that the nominative causees in Korean belong to Clause Union sentences, and that Relational Grammar should recognize them as representing a new type of Clause Union in which lower arguments are not re-valued for grammatical relation. Yet the distinctions illustrated above between the sentences with accusative and nominative causees result from clause structure, rather than the grammatical relations of the causees.

The adverbial case marking data is consistent with such approaches such as Patterson (1974) and O'Grady (1991) which involve a sentential complement analysis for the causative with a nominative causee, and an analysis in which the accusative causee is part of the matrix clause, with a VP complement headed by the lower verb. The data is also consistent with my analysis, which I will present fully in Chapters 3 and 4.

2.3.3 Phonological Phrasing

The reflection of VP in Korean phonological phrasing, as described by Y. Cho (1990) and Silva (1991, 1992), could provide an additional test of the constituent structure of causatives compared with VP complement sentences. Because none of my consultants showed the phonological phrasing effects of VP in their speech, I was unable to determine the results of this test of constituent structure. Nevertheless, in this section I outline the way in which this potential evidence could bear on this question in order to make this test available for future research with consultants fitting the phonological phrasing dialect described in the literature.

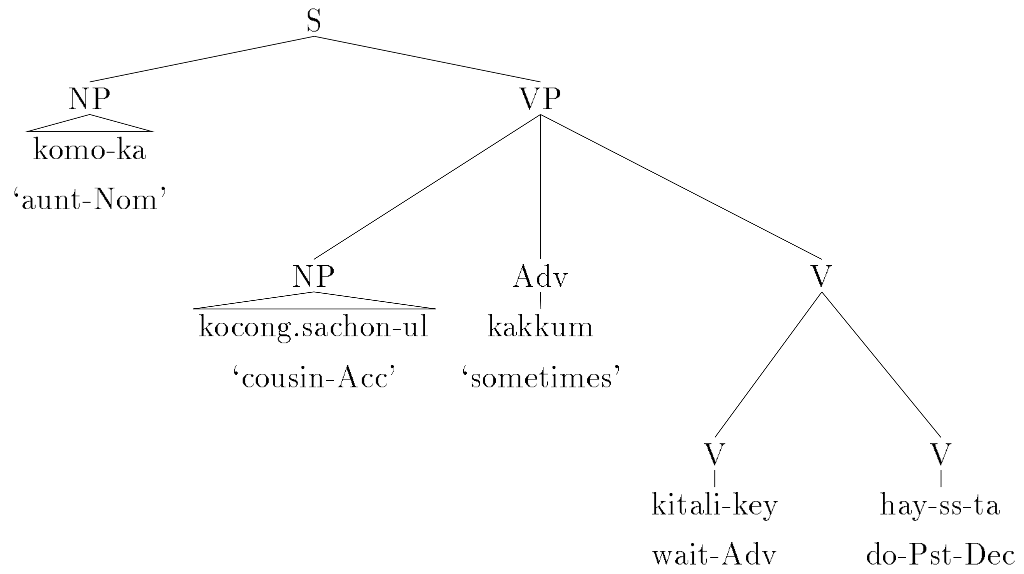
In this section, I adopt Y. Cho's (1990) analysis of how VP affects phonological phrasing, specifically, that for a branching VP, a phonological phrase is formed containing the verb and the nearest maximal phrase to its left within the VP. By including an adverb directly before the verb in our examples, we can ensure that all VP's under consideration are branching, and thus the same phrasing conditions will apply. These phrasing conditions allow us to test whether an NP is contained within VP or falls outside VP by examining the phonological phrasing of a sentence where the NP is the nearest argument to the verb, and the NP and the verb are separated by an adverb.

If we consider three types of constituent structures for the causative, phonological phrasing evidence could distinguish between the analysis I support and the two alternatives. The key example to consider involves a causative of an intransitive sentence with an accusative causee, as in (116). All words in this sentence, except for the causative verb *hay-ss-ta*, begin with the same unaspirated, non-glottalized stop and all words end with a voiced sound in order to create comparable environments for the cross-word intervocalic stop voicing found only within phonological phrases.

(116)	Komo-ka	kocong.sachon-ul	kakkum	kitali-key	hay-ss-ta
	aunt-Nom	cousin-Acc	sometimes	wait-Adv	do-Pst-Dec
	'My aunt sometimes made my cousin wait.'				

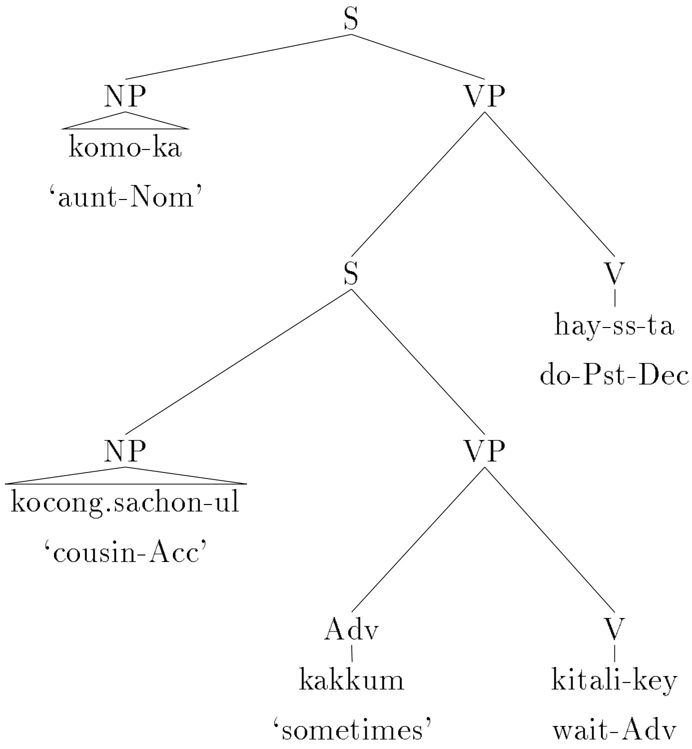
In the constituent structure I favor for the causative, the lower causee *kocong.sachon-ul* 'cousin-Acc' is an object NP within the lower VP, as seen in the tree in (117).

(117)



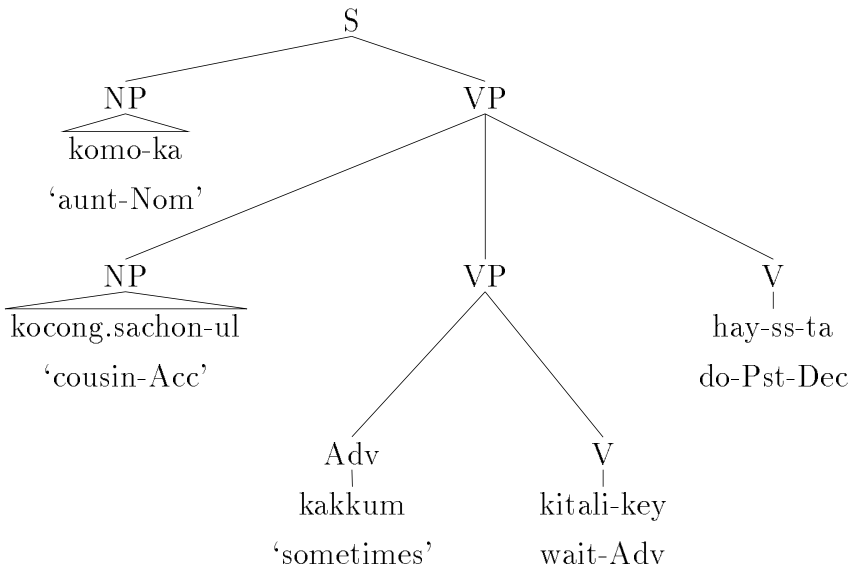
In contrast, constituent structures for the other two types of analysis place the lower causee outside of the lower VP. In the Exceptional Case Marking analysis (Y. Kim 1990a), the lower causee in (116) has the constituent structure position of a lower clause subject, as seen in (118).

(118)



In the Raising analysis (O'Grady 1991), the lower causee has the constituent structure position of a matrix object outside of the lower VP, as shown in (119).

(119)



The structural differences between the three types of analysis make the effects of VP on phonological phrasing a crucial form of evidence. Under the verbal complex analysis I support, the causee of an intransitive lower verb as in (116) would phrase together with the adverb and the lower verb, because it is the first maximal phrase to the left of the verb in the branching verb phrase. Under the Exceptional Case Marking analysis or the Raising analysis, there is a lower VP boundary separating the lower causee from the adverb and the verb, and thus the causee will not phrase together with the adverb and verb. All of these analyses predict that in a regular VP complement sentence, such as (120), the lower subject will not phrase together with the lower adverb and verb.

(120) Komo-ka kocong.sachon-ul kakkum ka-lilako kitay.hay-ss-ta
aunt-Nom cousin-Acc sometimes go-Cmp expect-Pst-Dec
'My aunt sometimes expected my cousin to go.'

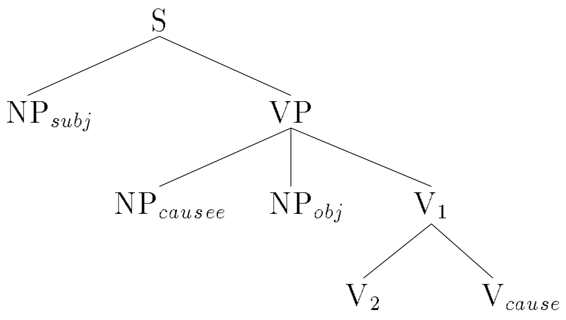
Under my analysis, this phrasing will contrast with the phonological phrasing of the causative sentence in (116). Under the opposing analyses, the phrasing of the VP complement sentence will be the same as in the causative sentence.

My Korean consultants did not exhibit any voicing of word-initial obstruents in (116) or (120), even in the non-controversial phrase containing the adverb and the lower verb which should produce a voiced word-initial stop on the lower verb. Thus I had no evidence of where phonological phrase boundaries were occurring, and could not test my hypothesis. I have laid out the relevant data and arguments in this section in hope that future research will provide the evidence.

2.3.4 Conclusion: Causative Structure

Evidence from scrambling, the interaction of scrambling with negative scope, and from adverbial case marking combines to support a monoclausal analysis of the periphrastic causative with a verbal complex of the lower verb and the causative verb. The structure I adopt for the periphrastic causative, first given in (88), is repeated below in (121).

(121) Causative: canonical order



Phonological phrasing evidence will also bear on the question of the correct structure for the causative, in the dialects of speakers exhibiting cross-word phrase-internal intervocalic voicing.

In the next section, I concentrate on the verbal complex part of the periphrastic causative structure, giving further evidence that this is indeed the correct constituent structure for this construction.

2.4 Verbal Complex

The combination of lower verb and causative auxiliary into a single constituent has been part of many other accounts (I. Yang 1972, H. Sohn 1973, Y. Kang 1986), often as the surface structure resulting from a transformation such as Predicate Raising. In this thesis, I will adopt the verbal complex structure for the sole constituent structure of the periphrastic causative. As in these previous works, I am assuming that not only the causative, but also various other auxiliaries (*po-ta* 'try', *siph-ta* 'want', and others) involve verbal complexes. Because none of these auxiliaries contribute new arguments beyond those of the lower verb, the kind of scrambling data presented for the causative simply is not relevant for these cases.

The verbal complex is an interesting aspect of the analysis because it provides the means for the dual monoclausal/biclausal nature of the periphrastic causative. Functioning as a unit, the verbal complex acts like a single verb in a monoclausal structure. Conversely, the syntactic, rather than lexical, combination of the two verbs reflects their independent contributions to various properties of the sentence, as in a biclausal sentence. The relation of these verbs to each other, and the general nature and behavior of the verbal complex is an important dimension of my analysis.

In this section, I first present evidence from case marking and negation particles to establish that the verbal complex is formed in the syntax, and not morphologically compounded, as well as evidence from scrambling, negative scope and ellipsis that the verbal complex functions as a unit. I then discuss two constructions where the verbal complex is split apart, specifically, coordination and a certain kind of scrambling, and discuss how these constructions affect my conception of the verbal complex.

2.4.1 Evidence for Verbal Complex Structure

The evidence for the verbal complex structure supports the distinct but united nature of the two verbs functioning together as one. Morphological characteristics, as seen in case marking, and syntactic properties, as seen in negative particle placement, support the independent wordhood of the two verbs. Negative scope over the entire verbal complex, inseparability of the complex in ordinary scrambling, and the impossibility of omitting part of the complex in ellipsis support the constituenthood of the verbal complex.

2.4.1.1 Syntactic, not Morphological, Formation

We turn here to the evidence that two verbs in a verbal complex are not a morphological unit.

2.4.1.1.1 Case Marking on the Lower Verb Case markers suffixed to the lower verb provide us with evidence of the independent morphological wordhood of the first verb in the V-V sequence of the verbal complex. Case markers are always suffixes in Korean, and it would be highly unusual for them to occur in the middle of a single word.

The possibility of case marking in this kind of sentence has long been noted.

J.O. Cho (1988) notes that case markers can follow the first part of the verbal complexes, though not all case markers can follow each kind of verb, defined by its suffix. H. Sohn (1973:67) states that if any case marker is possible in a verbal complex, the accusative *-lul* will be possible. I. Yang (1972:170, 185, 209) discusses various Case Markings possible on the verbs in verbal complexes, as well as delimiters such as *-kkaci* 'up to, as far as', as in *wus-key-kkaci hay-ss-ta* 'caused even to smile'. The topic marker *-(n)un* and delimiter markers *-to* 'also' and *-man* 'only' also attach to the first part of the verbal complexes, but not to the final verb.

This variety of case marking on the lower verbs in verbal complexes is evidence that the case marking on the verb is a reflection of synchronic properties, and not a single frozen form of case marking preserved inside a morphological compound through historical accident.

As further evidence that the case marking is added morphologically in modern Korean, and not simply an unanalyzed part of the lower verb, we can note that the case marking possibilities in several kinds of verbal complexes differ based on whether the sentence is active or passive.

Yookyung Kim (1992a) discusses case marking in post-verbal negation sentences, where active sentences permit accusative, but not nominative, case on the negated verb, but passive sentences permit accusative or nominative case marking. The negated verb and the lower verb form a verbal complex in my analysis. Kim's examples are given below.

(122) a.

John-i	kencho-lul	thulek-ey	sil-ci(-**lul/*-ka**)	anh-ass-ta
John-Nom	hay-Acc	truck-Loc	load-Cmp(-Acc/*Nom)	NegAux-Pst-Dec

'John didn't load hay in the truck.'

b.

Kencho-ka	thulek-ey	sil-li-ci(-**lul/-ka**)	anh-ass-ta
Hay-Nom	truck-Loc	load-Pass-Cmp(-Acc/-Nom)	NegAux-Pst-Dec

'The hay was not loaded in the truck.'

The periphrastic causative has a slightly different pattern of case marking, which also depends on whether the sentence is active or passive. In active causative sentences, accusative marking may appear after the *-key* suffix. In passive sentences, accusative case marking is impossible on the verb. Nominative case is not generally acceptable on active or passive causative lower verbs. These facts are demonstrated in (123).

(123) a. Chelswu-ka Swuni-lul wus-key-lul hay-ss-ta
Chelswu-Nom Swuni-Acc smile-Adv-Acc do-Pst-Dec
'Chelswu made Swuni smile.'

b. Swuni-ka wus-key(*-lul) ha-ye ci-ess-ta
Swuni-Nom smile-Adv(-Acc) do-Cmp PasAux-Pst-Dec
'Swuni was made to smile.'

The topic marker -*nun* is also possible on the lower verb in either active or passive sentences, as seen in (124).

(124) a. Chelswu-ka Swuni-lul wus-key-nun hay-ss-ta
Chelswu-Nom Swuni-Acc smile-Adv-Top do-Pst-Dec
Chelswu made Swuni smile.

b. Swuni-ka wus-key-nun ha-ye ci-ess-ta
Swuni-Nom smile-Adv-Top do-Cmp PasAux-Pst-Dec
'Swuni was made to smile.'

Case marking on the lower verb supports the syntactic formation of the verbal complex because case marking does not appear inside words normally, or in other compounds. The fact that case marking is also dependent on whether the verb is active or passive shows that this is genuine case marking, not a frozen form.

2.4.1.1.2 Negative Particle Placement In addition to case markers appearing after the lower verb, negative particle placement provides a second instance of material separating the two verbs. If the two verbs in a verbal complex were morphologically joined, we would not expect to see negative particles such as *an* 'not' and *mos* 'cannot' occurring between them. The following example from S. Song (1988:214) demonstrates that the negative particle *mos* 'cannot' is perfectly acceptable between the lower verb and the causative auxiliary.

(125) Ku-ka na-eykey kimchi-lul mek-key **mos** hay-ss-ta
'He-Nom I-Dat kimchi-Acc eat-Adv cannot do-Pst-Dec
'He could not make me eat kimchi.'

Thus, the possibility of case marking suffixed to the first verb in the verbal complex, along with the possibility of negative particles appearing between the two verbs, supports the independent word-hood of each of the verbs in the verbal complex. The verbal complex is a syntactic constituent, not a morphological one.

2.4.1.2 Unitary Behavior of Verbal Complex

In this section, I turn to properties which support the constituenthood of the verbal complex by treating the complex as a unit, specifically, negative scope, scrambling, ellipsis, and grammaticalization.

2.4.1.2.1 Negative Scope The negative particles *an* 'not' and *mos* 'cannot' occur not only between the verbs of a verbal complex, but also before the verbal complex as a whole, negating it as a unit. Y. Lee (1988), Sells and Cho (1991), and Sells (1994) describe the interaction of the negation marker *an*, which must occur directly before verbs, and verbal complexes. While *an* before a verb in a VP or S complement can only take scope over that one verb, as in (126), *an* before a verbal complex can take scope over just the first verb, or over the entire verbal complex, as seen in (127).

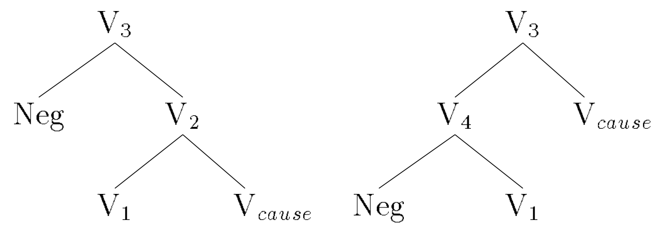
(126) a. John-i Mary-eykey [**an** mek-tolok] seltuk.hay-ss-ta
John-Nom Mary-Dat Neg eat-Cmp persuade-Pst-Dec
'John persuaded Mary not to eat.'/*'John didn't persuade Mary to eat.'

b. John-i [Mary-ka **an** mek-ess-ta-ko] mal.hay-ss-ta
John-Nom Mary-Nom Neg eat-Pst-Dec-Cmp say-Pst-Dec
'John said that Mary didn't eat.'/*'John didn't say that Mary ate.'

(127) John-i Mary-lul **an** mek-key hay-ss-ta
John-Nom Mary-Acc Neg smile-Adv do-Pst-Dec
'John didn't make Mary eat' or 'John made Mary not eat.'

Positing a VP complement structure for the causative would not explain these facts. The verbal complex structure for the causative, in contrast, allows different negated structures corresponding to this contrast, as seen in (128).

(128)



Negative scope provides further evidence of constituent structure for verbal complexes involving more than two verbs. In (129), *an* may have scope over any number of verbs directly following it in the verbal complex. The possible scopes, listed in (130), correspond to constituents in a left-branching structure for the verbal complexes.

(129)	Ai-ka	aki-lul	**an**	wus-key	ha-ko	siph-eyo
	child-Nom	baby-Acc	Neg	smile-Adv	do-Cmp	want-End

'The child (doesn't) want(s) to (not) make the baby (not) smile.'

(130) a. scope over *wus-key*
'The child wants to make the baby not smile'

b. scope over *wus-key ha-ko*
'The child wants to not make the baby smile'

c. scope over *wus-key ha-ko siph-e-yo*
'The child doesn't want to make the baby smile.'

The scope of the negative particles *an* and *mos* corresponds directly to the constituent to which they are attached, demonstrating that verbal complexes form syntactic units, with a left-branching structure.

2.4.1.2.2 Inseparability in Ordinary Scrambling A second way in which the verbal complex functions as a unit is in not allowing adverbs or NP arguments to intervene between the two verbs, despite normally free word order for non-heads. In the examples below, the canonical grammatical order is given first, then the ungrammatical scrambled orders. (131b) shows that the matrix subject cannot occur between the two verbs, (131b) shows that the lower subject similarly cannot occur in between the two verbs, and (131c) shows that an adverb is ungrammatical in this position as well.

(131) a. Sensayngnim-kkeyse haksayng-tul-ul ka-key ha-si-ess-ta
teacher-HNom student-Plur-Acc go-Adv do-SHon-Pst-Dec
'The teacher made the students go.'

b. *Haksayng-tul-ul ka-key **sensayngnim-kkeyse** ha-si-ess-ta
student-Plur-Acc go-Adv teacher-HNom do-SHon-Pst-Dec
'The teacher made the students go.'

c. *Sensayngnim-kkeyse ka-key **haksayng-tul-ul** ha-si-ess-ta
teacher-HNom go-Adv student-Plur-Acc do-SHon-Pst-Dec
'The teacher made the students go.'

d. *Sensayngnim-kkeyse haksayng-tul-ul ka-key ecey
teacher-HNom student-Plur-Acc go-Adv yesterday
ha-si-ess-ta
do-SHon-Pst-Dec
'The teacher made the students go yesterday.'

Gerdts (1990:208–209) describes the acceptability of scrambled subjects and adverbials appearing between the lower verb and causative verb as varying between speakers, and suggests that this difference can be related to the morphological or syntactic status of the Causative Clause Union. Under this conception, speakers who formed a morphological causative would not permit other items to occur between the two verbs, while speakers with a syntactically formed causative would allow the occurrence of scrambled arguments or adverbs between the lower verb and causative verb.

The native speakers I have consulted do not appear to belong to the categories Gerdts outlines. All of them reject simple scrambled sentences with elements occurring between the lower verb and the causative auxiliary, as in (131). However, these judgments do not seem to be the result of a grammar in which the two verbs are morphologically compounded. All of these speakers accept case markers on the lower verb and negative particles occurring before the second verb. Furthermore, all of these speakers allow coordination and some exceptional scrambled sentences to split the verbal complex. Thus, the unitary nature of the verbal complex is not absolute, as would be expected under a morphological compounding analysis. The two verbs in the verbal complex do not scramble apart in the way that most sentential elements are freely separable, and the syntactic combination of these verbs into a constituent explains this fact.

2.4.1.2.3 Ellipsis A third way in which verbal complexes behave as a unit is in elliptical expressions. J.O. Cho (1988) shows that neither the first part nor the second part of a verbal complex can be used alone to respond to a question.

(132) a. Ku chayk-ul ilk-e po-ass-ni?
that book-Acc read-Cmp see-Pst-Int
'Did you try to read that book?

b. Kulay, ilk-e po-ass-e
yes, read-Cmp see-Pst-DecAbr
'Yes, I tried to read it.'

c. *Kulay, po-ass-e
yes, see-Pst-DecAbr
'Yes, I tried.'

d. *Kulay, ilk-e
yes, read-Cmp
'Yes, I read.'

Thus, the verbal complex is a natural unit, even in sentences in which extraneous information is omitted. The behavior of verbal complexes in elliptical sentences, along with their negative scope properties and general inseparability in scrambling, supports the analysis of the verbal complex as a syntactic constituent.

2.4.1.2.4 Grammaticalization into New Verbs The constituenthood of the verbal complex receives indirect support from the fact that several causative verbal complexes have been grammaticalized into new causative verbs. Examples of this include *nollaykhi-ta* 'startle', derived from *nolla-key* 'be startled' plus *ha-ta* 'cause'; *tolikhi-ta* 'cause to change or return', derived from *tol-key* 'change or return' plus *ha-ta* 'cause'; and *iluki-ta* 'cause to get up', derived from *ilena-key* 'get up' and *ha-ta* 'cause' (Young-mee Yu Cho, p.c.).

Grammaticalization of these items would not absolutely require them to be a constituent; however, the constituenthood of the verbal complex would provide a minimal intermediate step between a historical biclausal origin of the periphrastic causative and a future new, lexicalized causative suffix of *-ki* derived from the combination of the *-key* suffix and the *ha-* causative verb root. The overwhelming path followed in grammaticalization is from transparent, syntactic collocations to opaque morphology (see Hopper and Traugott 1993, among others), and the fact that certain causative verbal complexes have grammaticalized into new verbs shows us that Korean periphrastic causatives may be becoming more lexicalized, as the older lexical causatives lose much of their biclausal, complex semantics and many lexical causative items are simply not used by younger Koreans.

2.4.2 Split Verbal Complexes

In this section, I will discuss two types of sentences in which the verbs of the verbal complex do split apart. These types of sentences are further evidence against a morphological compounding analysis of the verbal complex. After reviewing data in the areas of coordination and scrambling of items between the verbs of the verbal complex, I will discuss how these facts bear on the verbal complex analysis of the causative.

2.4.2.1 Coordination

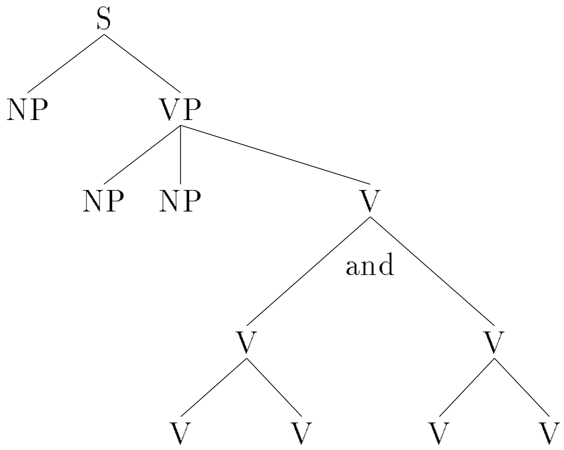
Under the ordinary assumptions that coordination of constituents is much more natural and acceptable than coordination of non-constituents, we would expect verbal complexes to conjoin with other verbal complexes, as well as expecting the verbs in the verbal complex not to separate in coordinated sentences. In this section, I provide data demonstrating that these expectations are not met in Korean; however, coordination does not appear to reflect constituency in sentences without verbal complexes either. Thus, coordination does not appear to be a reliable guide to constituency in Korean. Verbal complexes may indeed be split apart in coordination, but this testifies more to the freedom of coordination than to the lack of unity in verbal complexes.

Let us examine first the data in which coordination appears to support the unity of the verbal complex. (133) involves a causative sentence with a dative causee and accusative object followed by conjoined verbal complexes, each with a different lower verb and its own causative verb.

(133)	Na-nun	ai-tul-eykey	kwaca-lul	[kwup-key	ha-ko]	[mek-key	ha-keyss-ta]
	I-Top	child-Plur-Dat	cookie-Acc	bake-Adv	do-Conj	eat-Adv	do-Fut-Dec
	'I will have the children bake and eat cookies.'						

For a sentence with a verbal complex such as (133), coordination of two verbs with another two verbs would involve only constituent conjunction, as expressed in the tree in (134).

(134)



We would not expect to see coordination which divided the verbs of verbal complex from each other, but this type of coordination occurs as well for causative sentences, as seen in (135).

(135)	Sensayngnim-kkeyse	ai-eykey	[chayk-ul	ilk-ko]	[kwaca-lul	mek-key]
	teacher-HNom	child-Dat	book-Acc	read-Conj	cookie-Acc	eat-Adv

ha-si-ess-ta
do-Hon-Pst-Dec
'The teacher made the child read a book and eat a cookie.'

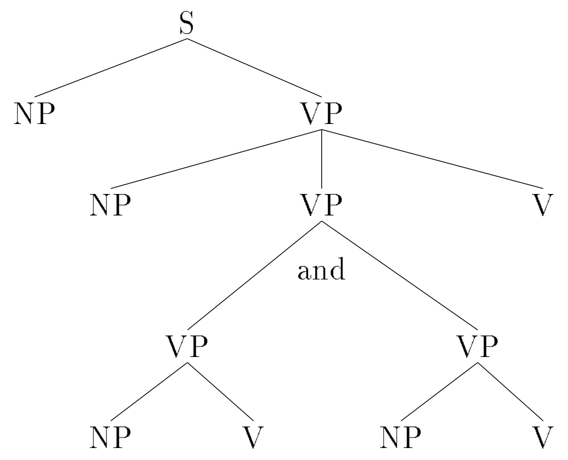
Faced with these dual coordination possibilities, we might think that the causative really had two possible structures, one with verbal complexes allowing coordination as in (133) and a second one with a more conventional VP complement structure, which allowed coordination as in (135). However, this approach would lead to a troubling duplication in the analysis, with every causative sentence having two possible structures, except for those sentences where coordination forced the assignment of the sentence into a single possible constituent structure. Furthermore, by looking at genuine VP complement sentences, we can see that the dual coordination possibilities extend beyond the causative or verbal complex sentences.

The expected coordination behavior from VP complement sentences would be to allow coordination of two entire lower VP's. We do in fact see this behavior in sentences like (136).

(136) Sensayngnim-kkeyse ai-eykey [chayk-ul ilk-ko] [kwaca-lul mek-tolok]
teacher-HNom child-Dat book-Acc read-Conj cookie-Acc eat-Cmp
seltuk.ha-si-ess-ta
persuade-Hon-Pst-Dec
'The teacher persuaded the child to read a book and to eat a cookie.'

(136) would have the expected coordinated VP complement constituent structure, as shown in the tree in (137).

(137)



However, in addition to the coordination of lower VP complements as in (136), we also have coordination of apparent constituents formed by the lower verb plus the matrix verb, as seen in (138).

(138) Na-nun ai-tul-eykey kwaca-lul [kwup-tolok seltuk.ha-ko] [mek-tolok
I-Top child-Plur-Dat cookie-Acc bake-Cmp persuade-Conj eat-Cmp
seltuk.ha-keyss-ta]
persuade-Fut-Dec
'I will persuade the children to bake and eat cookies.'

Thus, even though many other properties have distinguished causative sentences from VP complement sentences, such as scrambling, negative particle placement and scope, and adverbial case marking, it appears that causative and VP complement sentences have exactly the same behavior in coordination.

In order to maintain the idea that coordination possibilities reflect constituent structure, the dual structure approach could be extended to give all VP complement sentences an additional verbal complex structure, to add to the dual structures required for causatives. This move would preserve the status of coordination as a constituent structure test, but remove constituent structure as a basis for explaining the contrasts between causative sentences and VP complement sentences in scrambling, negative particle placement and scope, and adverbial case marking. Positing dual structures for a tremendously large set of sentences in Korean with no reflection of the two structures other than coordination would be unparsimonious in itself, but combined with the loss of explanation for other phenomena, this analysis ends up with no redeeming features.

Instead, it appears that coordination is not giving us useful constituent structure information for Korean. Non-constituent coordination (see Hudson 1982, Dowty 1988, among others) produces the sentences which would otherwise be the ungrammatical part of a minimal pair. Sentences like (135) need not cause us to conclude that causatives have a VP complement structure.[20] However, we can take from coordination the knowledge that verbal complexes can be split apart in certain circumstances.

2.4.2.2 Splitting the Verbal Complex by Scrambling

The verbs of verbal complexes may also separate in non-coordinated sentences, when scrambled items occur between them. Although scrambling of items to the position between the verbs is much less free and ordinary than the scrambling of ordinary NP arguments, it does occur in some circumstances. In this section, I will provide examples of scrambled items between the lower verb and the causative auxiliary, and discuss the factors which seem to increase or decrease acceptability of such sentences.

As mentioned earlier, Gerdts (1986, 1990) states that some speakers allow items between the verbs of a causative while other speakers do not, and suggests that this

[20]Sells (1994) argues that this kind of coordination data supports a V' complement consisting of the lower object and lower verb. He attributes the conflicting negative scope and adverb scope properties to argument structure, which is distinct from constituent structure.

difference is related to a difference in whether the speakers analyze the verbs as morphologically compounded or not. However, the speakers I have consulted all find scrambling between the verbs usually unacceptable, and all of them find scrambling between the verbs acceptable in some instances. Thus the explanation for why scrambling is not freely acceptable, as it is for ordinary S and VP complement sentences, cannot be attributed to morphological integrity.

Let us now examine some of the factors enhancing the acceptability of items occurring between the verbs of the verbal complexes. Certain discourse markers affecting the force of the sentence appear to facilitate scrambling between the higher and lower verbs. Sentences with both topic marking (-*nun*) on the first verb, and emphasis marking (-*cochato* 'even') on the item between the verbs are much better than sentences without these suffixes. The sentences in (139) below get progressively better with the addition of these suffixes.

(139) a. ??Haksayng-tul-eykey chayk-ul ilk-key **Younghee-ka** hay-ss-ta
student-Plur-Dat book-Acc read-Adv Younghee-Nom do-Pst-Dec
'Younghee made the students read the book.'

b. ?Haksayng-tul-eykey chayk-ul ilk-key-*nun* **Younghee-ka** hay-ss-ta
student-Plur-Dat book-Acc read-Adv-Top Younghee-Nom do-Pst-Dec
'Younghee made the students read the book.'

c. Haksayng-tul-eykey chayk-ul ilk-key-*nun* **Younghee-cochato**
student-Plur-Dat book-Acc read-Adv-Top Younghee-even
hay-ss-ta
do-Pst-Dec
'Even Younghee made the students read the book.'

Note that the three phrases occurring before the scrambled item, namely the dative causee *Haksayng-tul-eykey* followed by the object and verb *chayk-ul ilk-key-nun* 'students-Dat book-Acc read-Cmp-Top', do not form a constituent under any account of the causative, so the analysis of this scrambling is not likely to involve the fronting of a single constituent.

A second characteristic of scrambling between the verbs of the verbal complex is that apparently only a single argument can occur between the verbs, as seen in (140).

(140) a. *Chayk-ul ilk-key **Younghee-ka haksayng-tul-eykey** hay-ss-ta
book-Acc read-Adv Younghee-Nom student-Plur-Dat do-Pst-Dec
'Younghee made the students read the book.'

b. *Haksayng-tul-eykey ilk-key **Younghee-ka chayk-ul** hay-ss-ta
student-Plur-Dat read-Adv Younghee-Nom book-Acc do-Pst-Dec
'Younghee made the students read the book.'

If scrambling between the verbs of the verbal complex were true free ordering of sister phrases, we would not expect any limitation on the number of elements which could occur in any position. Also, note that if we analyzed the lower object plus the lower verb as a constituent in causatives with dative causees, we would expect (140a) to be a grammatical sentence, formed by fronting the lower VP constituent. The fact that this sentence is ungrammatical means that we are not seeing the kind of scrambling facts that non-verbal complex structures of the causative would predict.

Another factor enhancing the acceptability of scrambled items between the verbs of the verbal complex is the length of the sentence. Furthermore, the case marking on the causee can also influence the status of these scrambled sentences. Dative causees allow more freedom in scrambling between the lower and higher verbs than accusative causees do.[21] In line with these considerations, the following examples, based on a causative with a dative causee, involve the causer subject occurring between the lower verb and the causative auxiliary.

(141) a. Hwunlyen-i an toy-se, ku kay-eykey caktayki-lul mwul-ko
training-Nom Neg become-because that dog-Dat stick-Acc bite-Conj

[21]As would be expected, the fully biclausal causatives with nominative causees in a lower clause allow even more scrambling between the lower and higher verbs than verbal complex causatives with dative or accusative causees. The conditions under which causatives with nominative causees allow the lower clause to be split from the matrix causative auxiliary do appear to be similar to the conditions under which verbal complexes are split apart, such as in longer or more emphatic sentences.

o-key-nun **amwuto** mos hay-ss-ta
come-Adv-Top no.one cannot do-Pst-Dec
'Because the dog was untrained, **no one** could make him retrieve the stick.'

b. Hwunlyen-i an toy-se, ku kay-eykey caktayki-lul mwul-ko
training-Nom Neg become-because that dog-Dat stick-Acc bite-Conj
o-key-nun **ku kay cwuin-cochato** mos hay-ss-ta
come-Adv-Top that dog owner-even cannot do-Pst-Dec
'Because the dog was untrained, **even his owner** could not make him retrieve the stick'.

A dative causee with the emphatic marker *-cochato* 'even' can occur between the lower verb and the causative verb.

(142) Nemwu caycwu-ka eps-e-se, ku kay-uy hwunlyensa-ka
So skill-Nom exist-Cmp-because that dog-Gen trainer-Nom
caktayki-lul mwul-ko o-key-nun **yengli.ha-n kay-eykey-cochato**
stick-Acc bite-Conj come-Adv-Top smart dog-Dat-even
mos hay-ss-ta
cannot do-Pst-Dec
'Because he was so unskilled, the dog trainer could not make **even the smart dog** retrieve the stick.'

The same sentence is also grammatical with an emphatic non-dative causee. The emphatic marker *-cochato* occupies the morphological "slot" of nominative or accusative case marking, so it is impossible to distinguish whether this causee is underlyingly nominative or accusative.

(143) Nemwu caycwu-ka eps-e-se, ku kay-uy hwunlyensa-ka
So skill-Nom not.exist-Cmp-because that dog-Gen trainer-Nom
caktayki-lul mwul-ko o-key-nun **yengli.ha-n kay-cochato** mos
stick-Acc bite-Conj come-Adv-Top smart dog-even cannot
hay-ss-ta
do-Pst-Dec
'Because he was so unskilled, the dog trainer could not make **even the smart dog** retrieve the stick.'

If the emphatic particle does not appear on the causee, the causee does not appear to be able to occur between the lower verb and the causative auxiliary, as exemplified below with a dative causee.

(144) *Nemwu caycwu-ka eps-e-se, ku kay-uy hwunlyensa-ka
So skill-Nom not.exist-because that dog-Gen trainer-Nom
caktayki-lul mwul-ko o-key-nun **yengli.ha-n kay-eykey** mos
stick-Acc bite-Conj come-Adv-Top smart dog-Dat cannot
hay-ss-ta
do-Pst-Dec
'Because he was so unskilled, the dog trainer could not make **the smart dog** retrieve the stick.'

Using the same base sentence, the object of the lower verb appears not to be able to occur between the lower verb and the causative verb. The judgments are the same for sentences with accusative and dative causees, and the examples below show sentences with dative causees.

(145) a. *Hwunlyen-i an toy-se, ku kay cwuin-i ku kay-eykey
training-Nom Neg become-because that dog owner-Nom that dog-Nom
mwul-ko o-key-nun **amwukes-to** mos hay-ss-ta
bite-Conj come-Adv-Top nothing-even cannot do-Pst-Dec
'Because the dog was untrained, his owner could not make him retrieve **anything**.'

b. *Hwunlyen-i an toy-se, ku kay cwuin-i ku kay-eykey
training-Nom Neg become-because that dog owner-Nom that dog-Nom
mwul-ko o-key-nun **kacang** coh-a ha-nun **kong-to** mos
bite-Conj come-Adv-Top favorite like-Cmp do-Pres ball-even cannot
hay-ss-ta
do-Pst-Dec
'Because the dog was untrained, his owner could not make him retrieve even his **favorite ball**.'

Adverbials similarly cannot intervene inside the verbal complex in short sentences, as in the example below.

(146) *Nay-ka Swuni-lul <u>kuli-key-nun</u> **cokum** <u>hay-ss-ta</u>
I-Nom Swuni-Acc draw-Adv a.little do-Pst-Dec
'I made Swuni draw a little.'

In longer sentences, we see parallel facts with adverbs as with argument NP's. Adverbs occurring between the lower verb and the causative auxiliary are more acceptable for causatives with dative causees than for causatives with accusative causees.[22] Due to the length of the example below, I separate the first, modifying part in (147a) from the actual core sentence in (147b).

(147) a. Cal hwumchi-l swu eps-ci anh-ul-kka ha-ko
well steal-Fut ability not.exist-Cmp not-Fut-whether do-Conj
kekceng.hay-ss-eto, unhayng-ey tul-e-o-n hwu-ey,
worry-Pst-even bank-in enter-Cmp-come-Pst after-Dat
'Although he had been worrying that perhaps he couldn't steal well, after he entered the bank,'

b. ku unhayng-kangto-ka unhayngcikwen-eykey ton-ul swunswunhi
that bank-robber-Nom bank-teller-Dat money-Acc obediently
kenney <u>cwu-key-nun</u> **him an tuli-ko** <u>hay-ss-ta</u>
across give-Adv-Top effort not take-Conj do-Pst-Dec
'the bank robber **effortlessly** made the bank teller obediently give him the money.'

In conclusion, sentences with discourse markers like the topic marker *-nun* on the lower verb and the emphatic marker *-cochato* 'even' on the scrambled element are more likely than other sentences to allow items to occur between the lower verb and the causative auxiliary. Longer sentences are more likely to permit this than shorter sentences, and dative causees are more likely to permit it than accusative causees. The number of scrambled items between the verbs of the verbal complex may be limited to only one.

[22] Also parallel to the facts with argument NP's, adverbs are more acceptable between the lower verb and the causative auxiliary in a biclausal causative with a nominative causee than they are in causatives with dative or accusative causees.

2.4.2.3 Syntax vs. Discourse in the Explanation of Split Verbal Complexes

The coordination and scrambling data in which the verbs of verbal complexes are separated from each other do not follow directly from my proposed structure of the periphrastic causative. However, they also do not directly argue for any of the alternate structures of the causative proposed in the literature. Because this data does not directly support hypotheses under consideration, it is reasonable to set it aside at this stage of research, without fully incorporating it into the present analysis. I will not present detailed schemata, rules, or lexical signs to produce these structures in HPSG. Instead, I will leave the data as presented here, in combination with my theoretical views on how and when it can best be incorporated into syntactic research, as a guide for the future, and a recognition of the complexity of the problem.

I see the free coordination possibilities, beyond those predicted by conjoining only constituents, as resulting from semantic need overriding syntactic regularities. As long as the grammatical relations between all appropriate NP's and all corresponding verbs are clear, it may be that constituent structure may be overlooked in the interests of producing a concise sentence.

The scrambling of items between the verbs of the verbal complex appears to come about when discourse need overrules syntactic properties, as indicated by the much greater acceptability of scrambling with emphatic sentences. The occurrence of these items in this position might be seen as similar to resumptive pronouns reinforcing the argument bearing a grammatical relation. The emphatic nature of these sentences might explain the restriction that only one item appears to be able to appear between the verbs of the verbal complex; it may not be possible to distribute a high level of emphasis over more than one argument or adjunct.

This kind of discourse-based explanation appears more plausible to me than a structurally based explanation, which might attribute the single item appearing between the verbs to a single structural position in the middle of the verbal complex. Relying on this kind of structural explanation treats these scrambled sentences as regular, ordinary sentences within the realm of syntax, and in no way stretching the bounds of syntax for discourse reasons. If further evidence made clear that these sentences ought to be treated purely syntactically, then this could be the correct approach. At this point in my understanding of the Korean facts, I would rather separate these cases out and treat them as a different kind of data.

The questions raised by the data on split verbal complexes touch on the general question of the methodology involved in selecting which data an analysis intends to account for, and which data it will abstract away from, either as a temporary measure or as a permanent distinction in analytical domains. In my view, syntactic research has to situate itself carefully between two kinds of problematic data. Semantics, discourse, particular word choice, or phonological properties such as overly similar words or too much alliteration can be sufficient to make certain sentences unacceptable, despite having no problems at all in their syntactic make-up. Conversely, semantic and discourse necessity can permit otherwise syntactically unacceptable sentences to be uttered in certain circumstances. This is the class I believe the split verbal complex sentences belong to. Other examples of sentences which have syntactic conflicts, but sound acceptable to speakers would be sentences involving resumptive pronouns, and sentences in which full names are used repeatedly in pragmatically confusing situations where syntax alone would call for a pronoun. Thus, syntacticians must be aware of the fuzzy boundaries of grammaticality judgments, shading off in both directions into areas where syntax is not as important to speakers as other factors.

HPSG has incorporated into its lexical signs the means to recognize when certain factors of context or semantics are responsible for making a sentence ungrammatical, but it does not provide a simple analytical counterpart for the reverse situation, in which sentences with ungrammatical syntax are acceptable due to discourse or pragmatic need. Optimality theory (Prince and Smolensky 1993, Grimshaw 1993) provides for ranked, violable constraints, so that we can consider situations in which syntactic generalizations could be violated rather than violate some discourse or semantic generalization.[23]

Nevertheless, rather than run the risk of obscuring the precise nature of the syntactic generalizations, my inclination is to avoid combining a large number of factors

[23]H. Choi (1996) explores the application of Optimality Theory to Korean scrambling within Lexical-Functional Grammar, though not specifically to split verbal complexes.

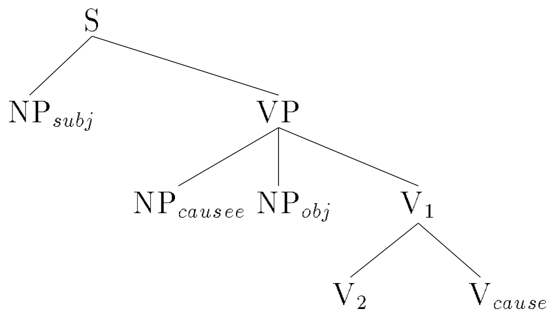
prematurely, and instead attempt to isolate the relevant syntactic data from the more complex data in which judgments of acceptability may not reflect syntactic properties at all. My proposed research program involves temporarily setting aside sentences in which semantic, discourse, pragmatic or phonological factors appear to overrule syntax, in conjunction with awareness of this data, and structuring analyses so that they will ultimately be able to be incorporated into an analysis accounting for the complete range of facts.

For the verbal complex data, the way in which I follow my research program is to set aside data with split verbal complexes from my precise rules, schemata, and HPSG lexicon, but to reject any developments in my analysis which would absolutely require a verbal complex for the causative, or strictly equate the monoclausality of the periphrastic causative with the presence of a verbal complex. However, the data supporting the existence of the verbal complex signify its grammatical reality. Over time, the verbal complex may become more tightly integrated, and at some point Korean grammar may begin to disallow the splitting of the verbal complex, regardless of the extra-syntactic pressures.

2.5 Conclusion: Causative Constituent Structure

In this chapter, I have examined the constituent structure of basic Korean sentences, and consequently adopted a particular kind of VP constituent in my analysis of Korean. I have distinguished S and VP complements by scrambling, which appears to reliably permit an element to scramble only with other elements of its clause. I have shown that causatives with accusative and dative causees are distinct from the S and VP complement structures, but the causatives with the nominative causees are very close to the S complement structures, and thus fit the name "embedding causatives". The accusative and dative causee causatives, I term "verbal complex causatives" due to their verbal complex of the lower verb plus the causative auxiliary. Below in (148), I repeat my structure for the Korean periphrastic causative.

(148) Causative: canonical order



We can now turn in Chapter 3 to the specific details of how we can produce causative sentences with this structure within Head-Driven Phrase Structure Grammar, and to how the syntactic and semantic components of my analysis interact to account for the behavior of Korean periphrastic and lexical causatives.

Chapter 3

Analysis in HPSG

Introduction

This chapter will present an analysis of Korean periphrastic causatives which captures the basic constituent structure facts presented in Chapter 2, as well as an analysis of the lexical causatives in Korean. In addition to schemata covering the constituent structure, I will discuss how the analysis covers the adverb modification, semantic and negation facts which have been important in distinguishing the lexical and the periphrastic causatives. Because my analysis is cast in the framework of Head-Driven Phrase Structure Grammar (HPSG), I provide an introduction to this framework in the first section of the chapter.

3.1 Introduction to HPSG

Historically, Head-Driven Phrase Structure Grammar (HPSG) grew out of Head Grammar (Pollard 1984), which developed from Generalized Phrase Structure Grammar (Gazdar, Klein, Pullum and Sag 1985). In addition to this direct theoretical lineage, HPSG has incorporated theoretical achievements from Government-Binding Theory (Chomsky 1981), Lexical-Functional Grammar (Bresnan 1982), and Categorial Grammar (Dowty 1982a, 1982b, Oehrle, Bach and Wheeler 1988). HPSG is a unification-based theory, in which different linguistic objects each contribute information to the linguistic expressions they occur in; compatible information accumulates to give a fuller picture of the linguistic expression, while incompatible information indicates the ungrammaticality of the expression. No information from lexical items or any other lexical expressions is ever changed in syntactic combination with other items; this accumulation of information without changing any specifications is referred to as monotonicity.

The fundamental way in which items are related to other items in syntax is through structure-sharing, in which certain specific information describing two items is identified as being the very same information. Structure-shared information is token-identical, rather than identical in the sense of the two items separately having the same specifications. Structure-sharing is used to indicate relations between many items which would be related through movement in a Government-Binding approach, such as Raised subjects, which HPSG treats not as the actual, moved subject of a lower clause, but rather as a matrix subject which shares syntactic and semantic information with the lower verb's subcategorization specifications about the unexpressed lower subject.

The monotonic, unification-based characteristics of HPSG, in conjunction with its use of structure-sharing rather than derivation, make it a reversible theory, in which the analysis of expressions is equally adapted toward explaining comprehension of those expressions as toward their production.[1]

Each linguistic expression in HPSG is called a sign, in the tradition of Saussure, to indicate its inclusion of the arbitrary phonological string connected with the semantics conveyed by it, in addition to its syntactic characteristics. HPSG signs are traditionally presented in the format of attribute-value matrices (AVM's), where square brackets enclose each hierarchical level of linguistic attributes, and the attributes are listed on the left side with their values occurring to the right of the attribute. Values may be atomic, as in the value "past" for the attribute "VFORM", or they may be

[1] At times, my writing style may emphasize the metaphors of sentence generation, in descriptions of how smaller signs contribute information to the phrases in which they occur; however, the emphasis on the production side is purely for expository purposes, and my theoretical foundation rests solidly on the declarative, non-directional aspects of HPSG.

complex, including several attribute-value pairs within them. In the next subsection, (149) gives an example of an AVM in the context of discussing specific properties of lexical items.

For the remainder of this section, I will divide my discussion of HPSG into three parts: the lexicon, the schemata, and the principles, though certain aspects of each part will interrelate with the others. Where there are differences between the version of HPSG presented in Pollard and Sag (1987) and Pollard and Sag (1994), I will present the 1994 version, adopting the Chapter 9 revisions following Borsley (1987, 1989, 1990, to appear) over the versions given in earlier chapters.

3.1.1 The Lexicon

The lexicon contains all the signs representing the linguistic information specified about every individual word. Relationships between different lexical items are expressed in two distinct ways: type inheritance relates hierarchical groups of items which share certain basic characteristics, and lexical rules relate items where one item is a more complex, derivational variant of the other. For example, the types *ditransitive* and *strict transitive* would each be subtypes of the type *transitive*, enabling all the properties holding true for all transitive verbs to be stated once, concisely for the *transitive* type, and thus inherited by all transitive verbs, whether transitive or ditransitive. Properties holding true only for strict transitives or only for ditransitives would be specified for that type, and inherited by all and only verbs belonging to that type. Lexical rules relate corresponding items such as active and passive verb forms.

The inner structure of lexical signs reflects the theoretical components of HPSG and the possible interactions between particular features. Sorts[2] are used to constrain the possible values of linguistic attributes. All possible values for an attribute belong to a particular sort; values belonging to this sort can only be used for an attribute selecting for it, and not for an attribute selecting for some other sort.

[2]I will use the terms "sort" and "type" interchangeably in this thesis, although many works use only one of the two, e.g. "sort" in Pollard and Sag (1994) and Keller (1993), and "type" in Pollard and Sag (1987) and Carpenter (1992). "Sort" appears to be the predominant term in current HPSG.

The first division within a sign is into the features PHON and SYNSEM, indicating the split between the phonological realization of the item and its syntactic and semantic characteristics. SYNSEM divides into LOCAL and NONLOCAL features, with LOCAL containing all the syntactic and semantic information which can be shared between a trace and a filler in an unbounded dependency, and NONLOCAL containing information necessary in particular to account for unbounded dependencies. In this thesis, I will concentrate on LOCAL information, which subdivides into the features CATEGORY, CONTENT, and CONTEXT.

The CATEGORY feature, often abbreviated "CAT", contains the HEAD value, for features shared by lexical and phrasal heads, the LEXICAL (or "LEX") feature, and the SUBJ and COMPS valence lists. The arguments on the COMPS valence list are ordered from least oblique to most oblique (written with obliqueness increasing from left to right), with the least oblique argument typically being a direct object for transitive verbs.

A verb's CONTENT (or "CONT") feature lists the semantic RELATION (or "RELN") it describes and the semantic roles involved in that relation. Each role is assigned to the referential index of the NP bearing that role. The linking of particular semantic roles to particular grammatical functions is indicated by the same referential index, as indicated by a boxed numerical tag in the AVM, forming part of an NP on the SUBJ or COMPS lists as the bearer of the role. A noun's CONTENT feature will list the noun's INDEX, including its person, number, and gender if it is referential, and the noun's RESTRICTION value, expressed in terms of a parameterized state-of-affairs, in the tradition of Situation Semantics (Barwise and Perry 1983). The RESTRICTION feature performs such functions as limiting the use of common nouns to situations where they refer to a real-world item appropriately described by the noun.

Let us now examine particular HPSG signs in AVM notation for the notation corresponding to these ideas. In (149), we see Pollard and Sag's (1994:20) example of the HPSG sign for the English word *she*. At each level of the AVM, the sorts of each item are indicated by left subscripts. Recall that every value must be of the appropriate sort for its attribute. Structure sharing is indicated by multiple occurrences of boxed numerals called *tags*, meaning that the information specified at each occurrence of the same tag is identical, and an instance of the same token, rather than a copied version. Descriptions of sets are given within curly braces, and descriptions of lists are given between angle brackets.

(149)

$$
{}_{word}\left[\begin{array}{ll}
\text{PHON} & \langle \text{she} \rangle \\
\text{SYNSEM} & {}_{synsem}\left[\begin{array}{ll}
\text{LOC} & {}_{local}\left[\begin{array}{ll}
\text{CATEGORY} & {}_{cat}\left[\begin{array}{ll} \text{HEAD} & {}_{noun}[\text{CASE nom}] \\ \text{SUBCAT} & \langle\ \rangle \end{array}\right] \\
\text{CONTENT} & {}_{ppro}\left[\begin{array}{ll} \text{INDEX} & \boxed{1}\ {}_{ref}\left[\begin{array}{ll} \text{PER} & \text{3rd} \\ \text{NUM} & \text{sing} \\ \text{GEND} & \text{fem} \end{array}\right] \\ \text{RESTR} & \{\} \end{array}\right] \\
\text{CONTEXT} & {}_{context}\left[\begin{array}{ll} \text{BACKGR} & \left\{ {}_{psoa}\left[\begin{array}{ll} \text{RELN} & \text{female} \\ \text{INST} & \boxed{1} \end{array}\right] \right\} \end{array}\right]
\end{array}\right]
\end{array}\right]
\end{array}\right]
$$

Instead of subscripts, more recent HPSG accounts may locate the sort labels as the top item in the list of features within an item, as in Wechsler (1995), with the italicization of the sort labels still serving to distinguish them from the features. I will follow this newer convention in this thesis, using signs in the format below.

(150)

$$
\left[\begin{array}{ll}
\multicolumn{2}{l}{\textit{local}} \\
\text{CATEGORY} & \left[\begin{array}{ll}
\multicolumn{2}{l}{\textit{cat}} \\
\text{HEAD} & \left[\begin{array}{l} \textit{noun} \\ \text{CASE nom} \end{array}\right] \\
\text{SUBCAT} & \langle\ \rangle
\end{array}\right]
\end{array}\right]
$$

HPSG signs are often given in abbreviated form, without the sort labels and without all the intervening levels of features and values, when those features do not play an important part in the analysis described. Thus, we might illustrate the semantic roles in a verb's relation, along with its subcategorization, with an HPSG sign such as in (151). The referential indices of NP's are given as subscripted numerical tags in this abbreviated format.

(151)
$$\left[\text{SYNSEM}\left[\begin{array}{ll}\text{CAT} & \left[\begin{array}{l}\text{SUBJ}\left\langle \text{NP}_{\boxed{1}}\right\rangle \\ \text{COMPS}\left\langle \text{NP}_{\boxed{2}},\ \text{PP}_{\boxed{3}}\right\rangle\end{array}\right] \\ \text{CONT} & \left[\begin{array}{l}\text{RELN explain}\\ \text{EXPLAINER } \boxed{1} \\ \text{EXPLAINED } \boxed{2} \\ \text{EXPLAINEE } \boxed{3}\end{array}\right]\end{array}\right]\right]$$

The internal structure of HPSG signs in the lexicon, as discussed above, forms the foundation of a great deal of syntactic analysis as well. Often the correct determination of the lexical entries for words involved in various syntactic phenomena accounts for the syntactic effects purely through the regular syntactic results of lexical specifications. Thus, lexical entries for words are the core part of many HPSG analyses. When a lexical item heads a phrase, many of its lexical specifications are inherited by the phrasal sign dominating it in constituent structure; lexical signs, of sort *word*, are closely related to phrasal signs, of sort *phrase*. The structure of lexical entries in HPSG is critical not only for understanding the lexicon, but also for understanding most syntactic phenomena.

3.1.2 Schemata

In HPSG, phrase formation in constituent structure occurs through Phrase Structure Schemata. These schemata specify how lexical items may combine within the syntax. HPSG follows the Generalized Phrase Structure Grammar tradition of separating Immediate Dominance from Linear Precedence; in other words, the fact that certain items may all be sisters within a phrase, dominated by a particular parent node, is theoretically distinct from the particular linear order of the sister items within the phrase. This separation allows for generalizations such as a preferred head-final ordering to be stated a single time within the grammar of a language, rather than repeated for each type of phrase. The schemata express the immediate dominance facts, while separate rules express linear precedence.

The immediate dominance structure of any phrase forms part of the HPSG sign for that phrase. At the highest level of the sign, "sister" to the features PHON and SYNSEM, phrasal signs have the feature DAUGHTERS, usually abbreviated DTRS. The DTRS feature takes as its value an element of sort *constituent-structure* (or *con-struc*), which will also belong to one of various subsorts. The subsort occurring most frequently in this thesis is the subsort *headed-structure* (or *head-struc*), and in particular, its subsorts *head-subject-structure* (or *head-subj-struc*) and *head-complement-structure* (or *head-comp-struc*). *head-comp-struc* has as features HEAD-DTR and COMP-DTRS, distinguishing its head daughter from a list of its complement daughters, and taking the entire lexical or phrasal signs involved as values of the HEAD-DTR feature or within the COMP-DTRS list. *head-comp-struc* will also have the SUBJ-DTR feature, consisting of an empty list, because the subject will never be satisfied within VP. *head-subj-struc*, as defined by Pollard and Sag (1994:348), will have a SUBJ-DTR feature with a singleton list value, a HEAD-DTR feature, and a COMP-DTRS feature specified as the empty list. I will revise this definition in my account of Korean constituent structure.

One of the interesting aspects of the structure of the DTRS feature results from the fact that the valence lists SUBJ and COMPS take a list of arguments of sort *synsem*. The complete separation of the information within the DTRS feature from the information within the SYNSEM feature means that subcategorization can never specify phrases with particular inner constituents. The limitation of subcategorization to *synsem* objects results in the locality of subcategorization, because the non-local information of inner constituents occurs within the DTRS feature.

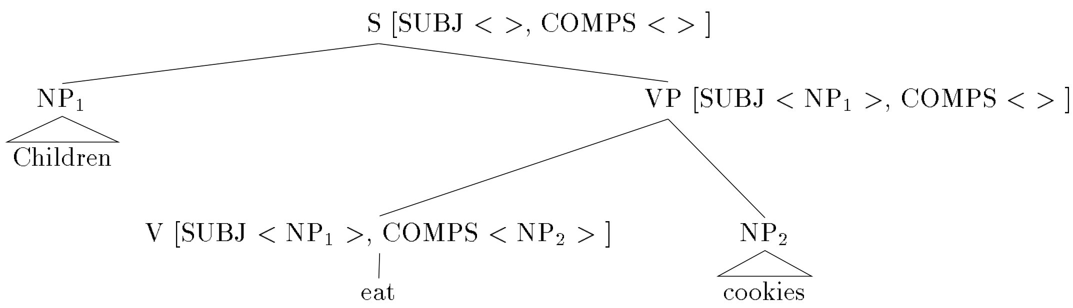
The schemata with the greatest relevance for this thesis are Schema 1, as stated in (152), which forms a complete sentence from a subject and a VP, and Schema 2, as stated in (153), which forms a VP.[3] These schemata make use of the sorts *head-subj-struc* and *head-comp-struc* to define the basic characteristics of the phrases involved. The schemata add the specification that the HEAD-DTR must be phrasal in Schema 1, as befits a VP, and that the HEAD-DTR must be lexical in Schema 2, as a verb would be within a VP.

(152) **Schema 1**: a phrase with DTRS value of sort *head-subj-struc* in which the HEAD-DTR value is a phrasal sign.

(153) **Schema 2**: a phrase with DTRS value of sort *head-comps-struc* in which the HEAD-DTR value is a lexical sign.

In addition to the immediate dominance information contained within the DTRS value of a phrasal sign, we can also represent immediate dominance facts in a tree, including the SUBJ and COMPS list values for the various nodes in the structure of a simple transitive sentence, in accordance with the above schemata.

(154)



This example illustrates how the lexically specified features of SUBJ and COMPS work in conjunction with the schemata in order to produce complete sentences. Although in this basic overview I have separated out the schemata as an important

[3]The versions of these schemata given in Chapter 1 of Pollard and Sag (1994) use the older HPSG SUBCAT list, which is a single list containing all arguments, subject and non-subject alike. Under this earlier version of HPSG with a SUBCAT list, the subject is distinguished from non-subject arguments by being the least oblique argument on the SUBCAT list, denoted by ordering it first on the SUBCAT list. Schema 1 and Schema 2 do not need to explicitly restrict non-subject arguments from saturating a SUBCAT list or the subject from forming part of the VP because of the Subcategorization Principle, which states that arguments must be satisfied in order of increasing obliqueness. Thus the subject will be the final argument to be satisfied from the SUBCAT list, and the one to saturate the SUBCAT list through Schema 1.

subsection of the fundamentals of HPSG, in fact, Pollard and Sag (1994:38) classify the total collection of all immediate dominance schemata as a universal principle in itself, namely, the Immediate Dominance Principle (IDP). Seeing the schemata as a principle of grammar leads to the next subsection in our consideration of the HPSG framework, concerning the principles of the theory.

3.1.3 Principles

The principles in HPSG constrain the interaction of HPSG signs, narrowing the set of possible well-formed phrases produced by any possible HPSG grammar. We have already seen how the immediate dominance schemata constrain the formation of constituents, and that they may be seen collectively as the Immediate Dominance Principle. In addition, we mentioned the role of the Subcategorization Principle in the older version of HPSG in ensuring that arguments of a SUBCAT list are satisfied in order of increasing obliqueness. Other principles of HPSG, present in older and current versions of HPSG, include the Head Feature Principle and Linear Precedence Constraints.

The Valence Principle, replacing the Subcategorization Principle of older HPSG, ensures that items satisfied from valence lists, such as SUBJ and COMPS, are represented on the corresponding "daughters" lists of the mother node. Furthermore, it requires that unsatisfied items are present on the valence list of the mother, just as they were on the head daughter's valence list.

(155) **Valence Principle:**

> In a headed phrase, for each valence feature F, the F value of the head daughter is the concatenation of the phrase's F value with the list of SYNSEM values of the F-DTRS value.

The Head Feature Principle, listed below, is the HPSG version of the Head Feature Convention in Generalized Phrase Structure Grammar. It ensures the sharing of particular features by a head and the phrase which it heads, namely the HEAD features. This principle is responsible for effects such as constraining phrases to be of the same grammatical category as their heads, and requiring verb phrases to have the same tense as the verb heading them.

(156) **Head Feature Principle:**

The HEAD value of any headed phrase is structure-shared with the HEAD value of the head daughter.

As touched on in the Schemata subsection, linear precedence (LP) constraints order sister items within a phrase.[4] The LP constraints or rules may be greatly underspecified, leaving room for variation of word order within the bounds imposed by the constraint. For example, Pollard and Sag (1987:172) give the following LP constraint to order lexical heads after all other sister elements in head-final languages like Hindi, Japanese, and Korean.

(157) **Linear Precedence Constraint for Head-Final Languages:**

[ ] < HEAD[LEX +]

HPSG has other principles beyond these, which also restrict possible grammars and possible phrase formation. Some of these principles are outside the scope of this thesis, while other principles will be introduced in relevant parts of the thesis.

3.1.4 Complementation in Equi and Raising

For the final part of my review of the basic foundations of HPSG, I will briefly present some aspects of the Sag and Pollard (1991) and Pollard and Sag (1994) analysis of Equi and Raising sentences with verbal complements, which will be relevant as a base of comparison to the argument composition analysis of Korean periphrastic causatives which I propose in this thesis.

Both Equi and Raising verbs subcategorize for a complement and, separately, for the subject of that complement. An example of an Equi verb is given in (158), and

[4] An alternate style of implementing linear precedence is to adopt binary branching structure, so that nested constituency determines linear precedence. My preference is for phrases to be analyzed as flat unless there is specific evidence of constituency.

a parallel Raising verb is given in (159). Equi and Raising verbs can take a range of different types of complements, but I use object Equi and Raising verbs with verbal complements here for greatest parallelism to the Korean causatives.

(158) They persuade him to be happy.

(159) They believe him to be happy.

The fundamental difference between Equi and Raising verbs is that Equi verbs assign a semantic role to all their subcategorized dependents, while Raising verbs always subcategorize for one dependent to which they do not assign a role, namely the subject of the lower complement. Evidence for this difference can be found in the possible occurrence of expletives as Raised arguments, but not as the argument subcategorized for by both the Equi verb and the lower verb, as seen in (160).

(160) a. *They persuaded there to be sufficient reference books in the library.

b. They believed there to be sufficient reference books in the library.

The HPSG sign for an Equi verb like *persuade*, as given in (161) captures this difference by having a separate role in the *persuade* relation for the PERSUADEE, which is the NP object of *persuade* as well as the subject of the lower VP, as indicated by the boxed $\boxed{2}$ tag.

(161)

$$\begin{bmatrix} \text{PHON} \ \langle \text{ persuade } \rangle \\ \text{CAT} \begin{bmatrix} \text{SUBJ} \ \left\langle \text{NP}_{\boxed{1}} \right\rangle \\ \text{COMPS} \left\langle \text{NP}_{\boxed{2}}, \ \text{VP} \begin{bmatrix} \text{VFORM} \ \textit{inf} \\ \text{SUBJ} \ \left\langle \text{NP}_{\boxed{2}} \right\rangle \\ \text{COMPS} \ \langle \ \rangle \\ \text{CONTENT} \ \boxed{3} \end{bmatrix} \right\rangle \end{bmatrix} \\ \text{CONTENT} \begin{bmatrix} \text{RELATION persuade} \\ \text{PERSUADER} \ \boxed{1}\textit{ref} \\ \text{PERSUADEE} \ \boxed{2}\textit{ref} \\ \text{SOA-ARG} \ \boxed{3} \end{bmatrix} \end{bmatrix}$$

As seen in (162), the HPSG sign for a Raising verb like *believe* does not involve a semantic role for the object of belief, such as *BELIEVEE. Instead, the subject of the lower verb and object of the higher verb, indicated by the boxed $\boxed{2}$ tag, will bear only whatever role is assigned to it by the lower verb, if any.

(162)

$$\left[\begin{array}{ll}
\text{PHON} & \langle \text{ believe } \rangle \\
\text{CAT} & \left[\begin{array}{ll}
\text{SUBJ} & \left\langle \text{NP}_{\boxed{1}} \right\rangle \\
\text{COMPS} & \left\langle \boxed{2}\text{NP},\ \text{VP}\left[\begin{array}{ll}
\text{VFORM} & \textit{inf} \\
\text{SUBJ} & \langle \boxed{2} \rangle \\
\text{COMPS} & \langle\ \rangle \\
\text{CONTENT} & \boxed{3}
\end{array}\right] \right\rangle
\end{array}\right] \\
\text{CONTENT} & \left[\begin{array}{ll}
\text{RELATION} & \text{believe} \\
\text{BELIEVER} & \boxed{1}\ \textit{ref} \\
\text{SOA-ARG} & \boxed{3}
\end{array}\right]
\end{array}\right]$$

A second difference between Equi and Raising in the Pollard and Sag analysis, which is also apparent in the signs in (161) and (162), lies in the nature of the Raised or Equi-controlled argument. Equi verbs subcategorize for an argument which is coreferent with the lower verb's subject, indicated by the same index being borne by both. Thus, the Equi-controlled argument in (161) was written as an NP with a subscripted boxed $\boxed{2}$ for its index. Raising verbs subcategorize for an argument whose entire SYNSEM value is identical to that of the lower verb's subject's SYNSEM value. The identity of the SYNSEM values in (162) is also indicated by a boxed $\boxed{2}$, but in this instance the $\boxed{2}$ occurs before the NP, to signify that the entire following feature structure (or replaced feature structure, in instances where the tag does not occur with additional feature specifications) is structure-shared and token-identical to other occurrences of this boxed tag. This distinction between Equi and Raising verbs allows a neat account of Icelandic quirky case from lower complements appearing on Raised NP's, but not on Equi controlling NP's, as shared SYNSEM values imply shared case values, while coreference never results in shared case.

The SOA-ARG (state-of-affairs argument) in both (161) and (162) signifies the general state of affairs or situation denoted by the verbal complement. For Equi verbs, Sag and Pollard (1991) and Pollard and Sag (1994) classify the possible sorts of control-relations into three subsorts, namely *influence*, *commitment*, and *orientation*, in order to capture semantically-based generalizations of verbs in each of these subsorts. For example, the *influence* sort, which includes the Equi verb *persuade*, involves the object of the *influence* verb controlling the lower subject, while the *commitment* sort, including Equi verbs such as *promise*, involves the subject of the *commitment* verb controlling the lower subject. Causatives, like *persuade*, would most naturally fall into the *influence* sort. Thus, the sortal hierarchy in HPSG gives us the opportunity to identify and make use of generalizations regarding similar lexical items.

Having concluded this brief examination of Equi and Raising sentences in HPSG, as well as my review of the HPSG framework, I now turn to the specifics of my HPSG analysis of the Korean causative facts, including the constituent structure of periphrastic causatives, morphology and the lexicon with respect to lexical causatives, adverbs and modification, semantics of causation, and negation.

3.2 Constituent Structure

In Chapter 2, I examined general properties of Korean constituent structure, as well as arguing for a particular structure of the periphrastic causative. In this chapter, I show how the basic Korean constituent structure occurs, and show that only one additional Schema is needed for the Korean facts. Since the schemata are intended to be universal, it is a matter of some importance to justify the necessity of adding a schema. My proposed Lexical Complex Schema will be shown to be necessary for the Korean facts, and to have possible uses in English and German.

3.2.1 VP and Scrambling

Under the Sells (1990) conception of VP which I adopt, not all the non-subject arguments need to be satisfied within VP in Korean. While the same Schema 1 and nearly the same Schema 2 as for English will fit Korean constituent structure, the sorts *head-subj-struc* and *head-comp-struc* will have different realizations.

In Korean, the sort *head-subj-struc* will be the same as in English in involving a SUBJ-DTR feature with a singleton list value, but it will differ from English in not specifying the COMP-DTRS feature as the empty list. Since non-subject complements may be satisfied sister to the subject in Korean, the COMP-DTRS feature may or may not be empty on the S node of a particular sentence. The requirement of *head-subj-struc* is instead that the COMPS feature be the empty list, indicating that all the COMPS list items have been satisfied from the head.[5]

(163) *head-subj-struc* **in Korean:**

$$\begin{bmatrix} \text{SUBJ-DTR} \langle \; [\;] \; \rangle \\ \text{COMPS} \langle \; \rangle \end{bmatrix}$$

The sort *head-comp-struc* in Korean will resemble the sort *head-comp-struc* in English in specifying the SUBJ-DTR feature as the empty list, indicating that the subject is not satisfied within VP. The English *head-comp-struc* sort will also include the specification of the COMPS feature as the empty list, indicating that all non-subject complements have been satisfied within the VP. For Korean, the *head-comp-struc* will not specify anything about COMPS or COMP-DTRS because the non-subject complements may or may not be satisfied within the VP. The important characteristic of this structure is that the subject may not be satisfied within it.

(164) *head-comp-struc* **in Korean:**

$$\begin{bmatrix} \text{SUBJ-DTR} \langle \; \rangle \end{bmatrix}$$

[5]Pollard and Sag (1994:352) assume that the specification [COMPS $< >$] is included in the definition of a phrase, but I do not adopt this assumption, since Korean VP's may have unsatisfied complements. Thus, [COMPS $< >$] will be part of the specification only for phrasal sorts other than *head-comp-struc*.

In accounting for complements preceding the subject, I take an approach resembling the idea of liberation in GPSG, as in Zwicky (1986), where items are realized as sisters to the node which canonically would be their mother. This approach preserves the idea of a VP which does not contain the subject, rather than analyzing sentences with this ordering as involving flat structures. Because of the phonological phrasing effects of VP in Korean which are apparent in sentences where an object or objects precede the subject, it is necessary to analyze Korean sentences as having a VP, as described by Sells (1990), which may or may not contain all the complements, but which must not contain the subject.

Thus, the Korean situation differs from the Old English situation described by Warner (1993:227–288), where a flat clause structure is basic, but a VP structure is also possible. When objects precede the subject, the sentence is analyzed as having a flat structure, similar to the Modern English flat structure for Subject-Auxiliary Inversion in standard HPSG. In the flat clause structure Warner posits for Old English, the subject occurs on the COMPS list[6] along with the non-subject elements, and the flat structure involves satisfaction of elements from only this one valence list, as opposed to the standard HPSG (Pollard and Sag 1994:352) Modern English inverted sentence analysis involving satisfaction of items from both the SUBJ and COMPS lists. Warner correlates the difference between the Old English verb's subcategorizing for their subjects on the COMPS list, and Modern English verbs with their subjects on the SUBJ list, with the rise of the **that*-t effect, since, adopting Borsley's (1987) analysis, unbounded dependencies can be terminated in elements from the COMPS list, but not from the SUBJ list. The Old English subject could be the terminating trace of an unbounded dependency because it was on the COMPS list, while the Modern English subject cannot, because it is on the SUBJ list.

With the particular *head-comp-struc* and *head-subj-struc* parameterized for Korean, we can use the same Schemata for Korean as for English, as repeated below, except that Schema 2, as given in (166), refers to a [LEX +] sign instead of a sign of

[6]Warner follows Borsley (1987) in using the term 'SUBCAT list' for what Pollard and Sag (1994, Ch. 9) call the COMPS list, namely a list of of (ordinarily) non-subject complements, distinguished from the SUBJ list.

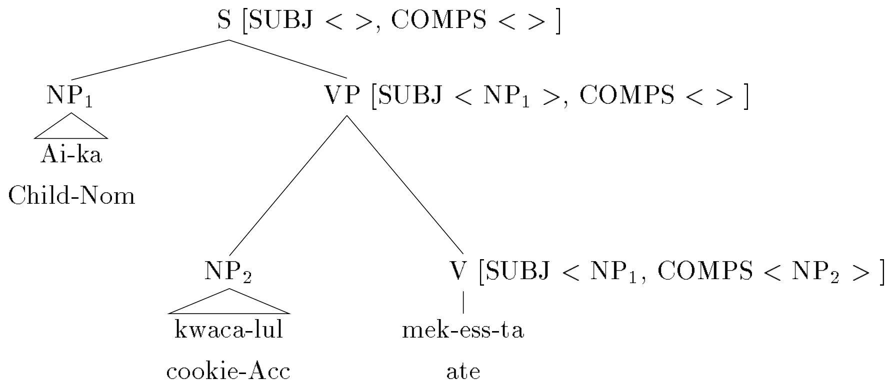
the lexical sort. The use of a feature rather than the lexical sort is necessary because the lexical sort will only refer to strictly lexical items, which are single items from the lexicon. The [LEX +] feature can be inherited to a phrasal head through the Lexical Complex Schema, allowing us to account for the existence of verbal complexes, and extended to verbal noun plus light verb combinations as in Poser (1990).

(165) **Schema 1**: a phrase with DTRS value of sort *head-subj-struc* in which the HEAD-DTR value is a phrasal sign.

(166) **(Korean) Schema 2**: a phrase with DTRS value of sort *head-comps-struc* in which the HEAD-DTR value is a [LEX +] sign.

A corresponding transitive tree in the canonical Korean ordering will be very similar to the English tree given above, differing only in the ordering of the elements in the VP.

(167)



For Korean, we will need an LP rule to order a head last in its phrase, thus ordering the verb last in the verb phrase and the VP after its sister complements. This LP rule will also correctly order head nouns last in NPs. Without any LP restrictions on the arguments of a head, they will appear in any order, giving us all the possibilities discussed above.

We can also add an LP rule to order the subject NP after all of its sister NP complements to limit the number of available structures for an utterance to just one. Thus, every subject of a sentence will appear immediately preceding the VP, discounting adjuncts which will not be ordered by this rule.

(168) **Head-Final LP Rule**: $[\,] < \mathrm{H}$

Subject-Final LP Rule: $\mathrm{NP} < \mathrm{NP}_{[\mathrm{subj}]}$

Adopting the Subject-Final LP Rule provides a basis for the phonological facts discussed in Chapter 2. If subjects never occur within the same phrase as the head V of a clause, but objects which occur linearly after the subject are always in the same phrase as the head V, the structural difference between them will be available to phonological phrasing rules.

Note that this account of scrambling involves base-generating all scrambled orders within a clause by the regular means of argument satisfaction, with the phrase structure schemata and LP rules of Korean allowing more possibilities than the schemata and LP rules of English. This close relation of scrambled orders to regular argument satisfaction means that scrambling is necessarily clause-bounded, since arguments are satisfied within the clause.[7]

3.2.1.1 An Alternate Proposal

The schema presented in (166) involves items being satisfied from both the SUBJ list and the COMPS list at the same time. The theoretical issue of whether subcategorization satisfaction should involve more than one valence list at a single mother node[8] leads us to consider an alternate means of accounting for the Korean phrase structure. Under this alternate proposal, subcategorization satisfaction would distinguish between SUBJ list satisfaction and COMPS list satisfaction as the primary

[7]This is not to say that arguments will never appear outside their clause, but merely to say that if they do, a different mechanism, such as topicalization, will have to be involved, rather than the one involved in clause-internal scrambling. See Y. Lee (1991, 1993) for an opposing viewpoint, motivated largely on the basis of binding relations dependent on linear order for both clause-internal and clause-external "scrambling".

[8]Satisfaction of items from both the SUBJ and COMPS lists at once occurs in the *head-subj-comp-struc* found in Schema 3, which is used for English inverted sentences, as in Subject-Auxiliary Inversion. However, this analysis might be subject to the criticism that only a single valence list should have items satisfied from it at a single mother node, the same criticism we are considering for (Korean) Schema 2.

distinction, rather than distinguishing between COMPS list items within the VP, and SUBJ or COMPS items outside the VP.

We would eliminate the [COMPS < >] specification in the *head-subj-struc* sort, because further COMPS list items could be satisfied at a higher level of structure than where the subject is satisfied.

(169) **Alternate *head-subj-struc* in Korean:**

$$\left[\text{SUBJ-DTR}\ \langle\ [\ ]\ \rangle\right]$$

A single *head-comp-struc* for complements above and below the subject would have to eliminate the [SUBJ-DTR < >] specification, because there is indeed a subject daughter for complements satisfied at the higher level of structure. This would leave us with a *head-comp-struc* sort with no specifications at all. If neither *head-subj-struc* nor *head-comp-struc* specified [COMPS < >], we would have no requirement for all complements ever to be satisfied in a sentence. Pollard and Sag (1994:352) assume that [COMPS < >] is part of the definition of a phrase, but for these alternate Korean structures, we need to allow complements to be unsatisfied in VP and at the level where the subject combines with VP, so [COMPS < >] cannot be true of all phrases. In order to include this requirement within the sorts used to generate standard argument-taking sentences, we could split the *head-comp-struc* into two distinct structures. The *head-lower-comp-struc* would account for the combination of complements with a head which has not combined with the subject, as indicated by the empty list specification for the feature SUBJ-DTR.

(170) **Alternate *head-lower-comp-struc* in Korean:**

$$\left[\text{SUBJ-DTR}\ \langle\ \rangle\right]$$

The sort *head-higher-comp-struc* would account for the combination of complements with a phrase where the subject has combined with the verb, as indicated by the specification of the SUBJ-DTR list as containing a single element, and it would require that all subcategorized complements be satisfied, giving an empty COMPS list for this sort.

(171) **Alternate** ***head-higher-comp-struc*** **in Korean:**

$$\begin{bmatrix} \text{SUBJ-DTR}\ \langle\ [\ ]\ \rangle \\ \text{COMPS}\ \langle\ \rangle \end{bmatrix}$$

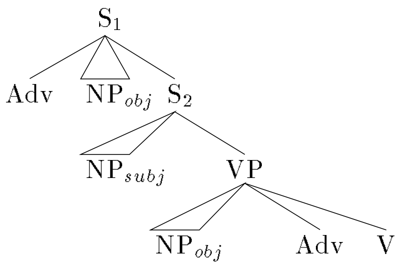
Because the Schemata rely on particular phrasal sorts to define the characteristics of the daughters and mother node, our revised phrasal sorts in this alternate analysis require us to change our schemata.[9]

(172) **Alternate Schema 1 (Korean)**: A phrase of sort *head-higher-comp-struc* or of sort *head-subj-struc* in which the HEAD-DTR value is a phrasal sign.

(173) **Alternate Schema 2 (Korean)**: A phrase of sort *head-lower-comp-struc* in which the HEAD-DTR is a [LEX +] sign.

These schemata will produce trees like the following, which involve two separate nodes, labeled S_1 and S_2 below, for the satisfaction of the SUBJ list and COMPS list items linearly preceding the subject.

(174)



[9]The version of Alternate Schema 1 I give below involves a disjunction of possible phrase sorts; a further alternative is to split this schema into two simple schemata to avoid the disjunction. I chose the disjunction in order to keep these schemata more closely similar to the standard HPSG schemata.

I will retain the earlier proposal because it involves only constituents which have been supported by evidence, namely the phonological phrasing evidence of Chapter 2 in which arguments after the subject phrase together with the verb in a VP. A second reason to prefer the original proposal relies on considering the theoretical cost of two separate *head-higher-comp-struc* and *head-lower-comp-struc* sorts, as well as a disjunctive Schema 1, to be greater than the theoretical cost of satisfying items from both SUBJ and COMPS lists together at one node, as this would be independently required for languages with a flat sentence structure involving no VP.

3.2.2 Verbal Complex

The phrase structure schemata given in (165) and (166) and the phrasal sorts given in (163) and (164), in conjunction with the SUBCAT specifications of the head V, are sufficient for licensing all of the grammatical S and VP complement canonical and scrambled orders, but the periphrastic causative sentences have a different structure. Since both Schema 1 and (Korean) Schema 2 involve [LEX −] mother nodes, we will need another Schema to produce the causative sentences. I will propose the Lexical Complex Schema, and discuss particular aspects of its formulation, namely the phrasal sort *head-lexcomp-struc* and the [LEX +] feature. I will also compare this verbal complex analysis with alternate adjacency analyses.

3.2.2.1 The Lexical Complex Schema and Phrasal Sort

I propose the Lexical Complex Schema, as listed below, to form the verbal complex in the causative. This schema, in conjunction with the sort *head-lexcomp-struc*, allows a [LEX +] head to combine with a [LEX +] complement to form a [LEX +] mother. This differs from the other schemata in three ways: it allows an X^0 (lexical, or [LEX +]) word as a complement, it limits the number of complements combining with the head to precisely one, and it allows a syntactically formed phrase to be counted as an X^0 (lexical, or [LEX +]) word.

(175) **(Korean) Lexical Complex Schema**: A [LEX +] phrase with DTRS value of sort *head-lexcomp-struc* in which the HEAD-DTR value is a [LEX +] sign.

The *head-lexcomp-struc* allows precisely one [LEX +] item to occur as a complement.

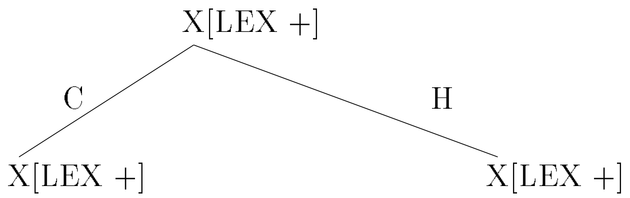
(176) ***head-lexcomp-struc*** **in Korean:**

$$\begin{bmatrix} \text{SUBJ-DTR} \langle \quad \rangle \\ \text{COMP-DTRS} \langle [\text{LEX} +] \rangle \end{bmatrix}$$

The SUBJ-DTR and COMP-DTRS specification, including the [LEX +] specification of the single complement, are part of the sort *head-lexcomp-struc*, while the [LEX +] specification of the head is part of the Lexical Complex Schema. This division of information resembles the other schemata and sorts, where the HEAD-DTR specification is part of the schema, while information about complements is part of the sort.

The following tree gives a graphical representation of this schema.

(177) **Lexical Complex Schema**



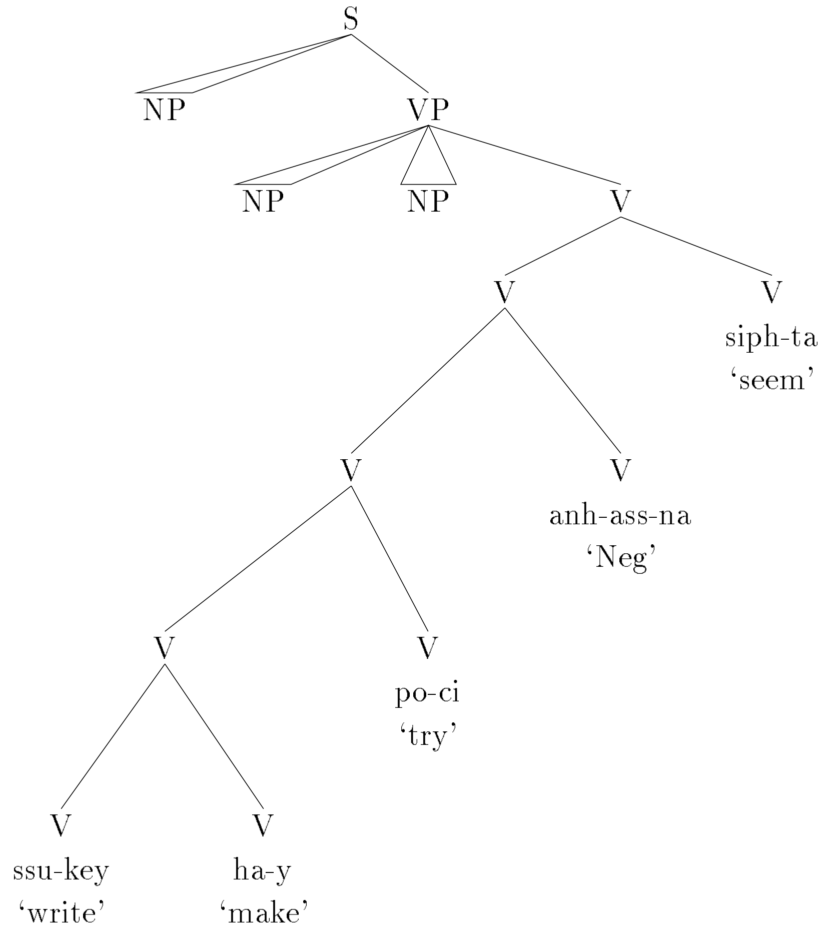
This structure allows recursion, which corresponds to the observed possibilities where an auxiliary can combine with another auxiliary, which is already combined with a verb, as in the example below, with the verbal complex structure given.

(178)

Emeni-ka	ai-eykey	phyenci-lul	ssu-key	ha-y	po-ci
Mother-Nom	child-Dat	letter-Acc	write-Adv	do-Cmp	try-Cmp
anh-ass-na	siph-ta				
Neg-Pst-Cmp	seem-Dec				

'It seems that perhaps the mother tried to make the child write a letter'.

(179)



I now turn to the issue of using the [LEX ±] feature in this analysis.

3.2.2.2 The [LEX ±] feature

In light of the existence of the lexical and phrasal sorts, it is important to examine the use of the [LEX ±] feature. Pollard and Sag (1987:172ff.) use the feature [LEX ±] to account for principles of constituent ordering, such as ordering lexical heads linearly before their complements in English, and explaining restrictions on complement ordering in verb-particle constructions. Pollard and Sag (1987:72–73) discuss the possibility of a mismatch between the feature [LEX ±] and the sorts *phrasal* and *lexical*, citing the distribution of noun-noun and adjective-noun structures which can occur in places where clear phrases cannot. Under this conception, the phrase *toxic waste* and the phrase *[toxic waste] dump* would each be [LEX +], and thus able to modify nouns, as in the phrase *[[toxic waste] dump] manager*. However, the phrase *dump for toxic waste* would be [LEX −] and thus unable to modify a noun, as in **[dump for toxic waste] manager*.

Arnold and Sadler (1992) develop the feature/sort mismatch proposal of Pollard and Sag (1987:72–73) and use the [LEX ±] feature to capture generalizations in the distribution of modifiers, whether nouns and adjectives of sort *word* or noun phrases and adjective phrases of sort *phrase*.[10]

Pollard and Sag (1994:22, fn. 8) state that they will not use the [LEX ±] feature, because they do not address questions of constituent ordering in this later book. The only lexical/phrasal distinction addressed in Pollard and Sag (1994) resides in the sorts *word* and *phrase*. The sort hierarchy restricts the kind of features which are possible for a sign: a sign of sort *phrase* has a DTRS feature (1994:31), while a DTRS feature is not possible for a sign of sort *word*.[11]

In my analysis, the feature [LEX +] indicates either a sign of sort *word* or a phrasal sign formed by the Lexical Complex Schema. There are no schemata other than the Lexical Complex Schema which permit a [LEX +] mother. Thus, the syntactic distribution of the feature [LEX +] is completely predictable from the lexicon and from the Lexical Complex constituent structure, which can be detected by the various empirical tests discussed in Chapter 2.

The [LEX +] feature is necessary to describe the class of items which occur as head or as complement in the Lexical Complex constituent structure, as well as to describe the class of items which the negative particles *an* and *mos* can take scope over.

The mismatch between the sort *word* and the feature [LEX +] is necessary to account for the current state of Korean grammar; however, the esthetic tension between two distinct representations of such similar linguistic ideas can be seen as motivation

[10] Sadler and Arnold (1994) explore this position without a formal analysis in HPSG.

[11] Pollard and Sag (1994:346), after adopting the SUBJ and COMPS lists, add that the sort *phrase* will specify [COMPS < >], i.e. that its COMPS list is fully saturated. As discussed above, I will not maintain this specification in Korean, because not all verbal non-subject complements must be satisfied within VP.

for future historical change. The Lexical Complex Schema can be seen as an intermediate historical step between a completely syntactic, biclausal structure and a completely lexical, monoclausal structure. It is well known (see Hopper and Traugott 1993, among others) that morphemes tend to develop historically from syntactic collocations. The Lexical Complex Schema provides a syntactic structure of which many lexical properties hold, as reflected by the [LEX +] feature, but which is not fully lexical, as indicated by its sort *phrase*, and not *word*. If future Korean speakers reanalyze the syntactically-formed Lexical Complexes as lexically-formed units, then the distinction between [LEX +] and the sort *word* will collapse, resulting in a simpler grammar, without the need for a distinct [LEX +] feature. Currently, the two features describe slightly different classes, and are thus necessary.

3.2.2.3 Verbal Complex vs. Alternate Adjacency Analyses

The Lexical Complex Schema gives the [LEX +] complement a different status from any complements of the head satisfied through Schema 2. An LP rule alone could ensure linear precedence facts of the items of the complex under discussion; however, properties more directly related to constituency motivate the Korean verbal complex, such as the negative scope facts discussed in Chapter 2. These constituency facts also rule out an analysis based on adjacency, as a slightly different concept from linear precedence. In this section, I will discuss how the ADJACENT feature of Japanese Phrase Structure Grammar (JPSG) cannot replace the [LEX +] feature or verbal complex structure.

The ADJACENT feature used in Gunji (1989, 1991) takes a list containing a single category, which much be morphologically adjacent to the head. Gunji (1989) characterizes auxiliary verbs in Japanese, such as the auxiliaries *tuzuke* 'continue' and *owar* 'end', as likely to use the adjacent feature for their verbal complements. If items such as a topic marker can occur between the complement verb and the auxiliary, as for the auxiliary *simaw* 'finish', then the ADJACENT feature is not appropriate, and the SUBCAT feature is used instead. Gunji (1991) describes the ADJACENT feature as distinguishing between complements which can scramble away from the head, and complements which have to be adjacent to the head. Postpositions and auxiliaries are described as typically using the adjacent feature for their complements.

For Korean auxiliaries, we do not want to characterize the items of the verbal complex as morphologically bound together, and we need to permit items such as topic markers, delimiters, and negative particles to occur between the verbal complement and the head verb. However, we do want to restrict the position of the verbal complement to occurring immediately before the verb, in all but the most exceptional cases. Permitting the verbal complement the same freedom of positioning as other verbal elements would mean that our analysis would not predict the overwhelming tendency of these items to occur strictly together.

If we considered a slight modification of Gunji's ADJACENT feature, which permitted morphological elements like topic markers and delimiters and particles like negation markers to occur between the verbal complement and the auxiliary, but did not permit the verbal complement to scramble away, we would have problems if this feature did not correspond to a constituent structure distinction. As shown in Section (3.6.1), negative particles may take scope over any constituent following them, which may contain a single verb, or a verbal complement plus a head, or a constituent consisting of a complex verbal complement plus a head. Even if this modified ADJACENT feature described the scrambling facts correctly, it would need to also describe the constituency-based negative scope facts. Thus, the analysis would need to require ADJACENT elements to be satisfied within a constituent.

At this point, with the ADJACENT feature analysis modified to allow intervening particles and to require satisfaction within a constituent, deciding between the two analyses based on the current known facts becomes a matter of esthetics and preferences for what linkages to predict. An ADJACENT feature-based analysis does not refer to the lexical or phrasal status of the complements, though the lexicon could be organized in such a way that ADJACENT lists were limited to taking only lexical items, while SUBCAT lists or other valence lists took phrasal items. A Schema-based analysis which includes the [LEX +] status of the head and complement expresses in one place the lexical status of the complement and the lexical status of the head, indicating that no phrasal complements have been satisfied.

Having a different list may indicate different binding possibilities, which may come into play in N + V complexes. In the newer versions of HPSG, because ARG-S will be composed of lists, including or not including a particular list on ARG-S will be a natural place to have as a parameter of variation. In older versions of HPSG, o-command will be defined on various lists, and including a list in the definition of o-command will similarly be a natural parameter of variation.

The Schema-based analysis allows for different Schemata to develop over time, which may give greater freedom to [LEX +] items. The interpretation of an ADJACENT list is less expected to vary in historical change. The relative merits of these approaches would depend on empirical historical data.

In conclusion, an analysis involving the ADJACENT feature of JPSG would need substantial modifications in order to describe the Korean facts. If all these modifications are made, then the ADJACENT feature could be useful. However, given the use of the ADJACENT feature to describe a quite different set of properties in Japanese, I will not choose to make the modifications. Instead, I will maintain my analysis involving verbal complexes formed in the syntax, with the [LEX ±] feature expressing a crucially different property from the sort *word*. I now turn to evidence that the Lexical Complex Schema involves a head and a complement.

3.2.2.4 Head-Complement Properties

In examining problems where two daughters both contribute the kind of information to the mother node that would be expected to come from a head, the issue arises of which direction the more conventional theoretical assumptions should be modified, either to allow this kind of information to come from a non-head or to allow more than a single head. Proposals for double-headed structures are found in Baker (1989), among other places. Allowing double-headed structures could be seen as analogous to allowing morphological compounds, in addition to the [affix + stem] morphological structures.

In this section, I will present evidence that the Korean verbal complex involves a head-complement structure, with the final verb functioning as the head.

3.2.2.4.1 Higher Verb Bears Tense In the causative verbal complex, as well as in verbal complexes with the second verb consisting of a wide range of auxiliaries including *anh-ta* the negation auxiliary, *po-ta* 'try', *twu-ta* 'do for future use', and *ci-ta* 'become', the auxiliary verb bears the tense marking which determines the tense of the sentence, as seen in (180). These particular auxiliaries belong to E. Han's (1991) Types A, B, and D.

(180) a. Emeni-kkeyse ai-eykey pap-ul mek-key ha-**yess**-ta
mother-HNom child-Dat rice-Acc eat-Adv do-Pst-Dec
'The mother made the child eat the rice.'

b. Emeni-kkeyse ai-eykey pap-ul mek-key ha-**n**-ta
mother-HNom child-Dat rice-Acc eat-Adv do-Pres-Dec
'The mother makes the child eat the rice.'

For verbal complexes with this set of verbs occurring as the second member, the lower verb cannot bear tense at all, regardless of whether the intended meaning of the tense marker is for the matrix clause or for the lower verb alone, as seen in (181).

(181) a. *Emeni-kkeyse ai-eykey pap-ul mek-**ess**-key ha-ta
mother-HNom child-Dat rice-Acc eat-Pst-Adv do-Dec
'The mother made the child eat the rice.'

b. *Emeni-kkeyse ai-eykey pap-ul mek-**ess**-key ha-**yess**-ta
mother-HNom child-Dat rice-Acc eat-Pst-Adv do-Pst-Dec
'The mother made the child have eaten the rice.'

c. *Emeni-kkeyse ai-eykey pap-ul mek-**nun**-key ha-**n**-ta
mother-HNom child-Dat rice-Acc eat-Pres-Adv do-Pres-Dec
'The mother makes the child eat the rice.'

Certain auxiliaries which form verbal complexes differ slightly from the generalization presented above. Auxiliaries such as *po-ta* 'seem' or *siph-ta* 'seem' belong to E. Han's (1991) Type C, and can occur with main verbs bearing their own independent tense marking. *po-ta* 'seem' does not even bear its own tense suffixes under any circumstances. However, the tense marking on the first verb of the complex is not interpreted as the tense of the entire sentence, while the tense of the auxiliary does equal the tense of the entire sentence. This property is illustrated in Han's examples given below in (182), where both sentences are in present tense despite the past tense marker on the first verb in (182). The morphologically defective *po-ta* 'seem' is interpreted as always being in present tense.

(182) a. Kim-sensayng-nim-i phyenci-lul ssu-si-na po-ta
Kim-teacher-Hon-Nom letter-Acc write-SHon-Cmp seem-Dec
'Teacher Kim seems to be writing a letter.'

b. Kim-sensayng-nim-i phyenci-lul ssu-si-**ess**-na po-ta
Kim-teacher-Hon-Nom letter-Acc write-SHon-**Pst**-Cmp seem-Dec
'Teacher Kim seems to have written a letter.'

Tense information is normally specified on the head and inherited as head information, for example when a verb's tense determines the sentence's tense. Thus, assuming that the auxiliary verb is the head of the verbal complex yields the correct tense information.

3.2.2.4.2 Head-Final Linear Ordering Verbal complexes always involve the auxiliary verb ordered after the main verb, as seen in (183).

(183) a. Emeni-kkeyse ai-lul [chwum.chwu-key **ha-si-ess-ta**]
mother-HNom child-Acc dance-Adv do-Hon-Pst-Dec
'Mother made the child dance.'

b. *Emeni-kkeyse ai-lul [**ha-si-ess-ta** chwum.chwu-key]
mother-HNom child-Acc do-Hon-Pst-Dec dance-Adv
'Mother made the child dance.'

c. Ai-ka [chwum.chwu-ci **anh-ass-ta**]
child-Nom dance-Cmp NegAux-Pst-Dec
'The child didn't dance.'

d. *Ai-ka [**anh-ass-ta** chwum.chwu-ci]
child-Nom NegAux-Pst-Dec dance-Cmp
'The child didn't dance.'

This ordering fact is completely consistent with the general linear precedence requirement for Korean that heads are ordered finally, as within NP's, AP's, VP's, PP's, and S's. (184) illustrates the requirement for head-final ordering within an NP.

(184) a. ku elyewu-n **swuep**
the difficult-Adj class
'the difficult class'

b. *ku **swuep** elyewu-n
the class difficult-Adj
'the difficult class'

c. ***swuep** ku elyewu-n
class the difficult-Adj
'the difficult class'

In (185), we see that an adjective must come finally within an AP.

(185) a. thukhi acwu **elyewu.n**
unusually very difficult
'unusually very difficult'

b. *thukhi **elyewu.n** acwu
unusually difficult very
'unusually very difficult'

c. ***elyewu.n** thukhi acwu
difficult unusually very
'unusually very difficult'

(186) shows the head-final ordering facts for PP's, VP's and S's, with ungrammatical examples of a postposition before a noun, the verb before a PP within VP, and the VP before the subject NP within S, respectively.

(186) a. Na-nun [Stanford-**ey tani-n-ta**]
I-Top Stanford-to attend-Pres-Dec
'I go to Stanford.'

b. *Na-nun [**ey**-Stanford tani-n-ta]
I-Top to-Stanford attend-Pres-Dec
'I go to Stanford.'

c. *Na-nun [**tani-n-ta** Stanford-ey]
I-Top attend-Pres-Dec Stanford-to
'I go to Stanford.'

d. *[Stanford-**ey tani-n-ta**] Na-nun
Stanford-to attend-Pres-Dec I-Top
'I go to Stanford.'

If we posit a head-complement relation between the auxiliary verb and the lower verb in the verbal complex, we will explain their rigid ordering by a general principle of Korean.

3.2.2.4.3 Higher Verb Determines Verbal Ending The auxiliary verb determines the lower verb's ending in a rigidly specified way, while the higher verb can take any verbal ending. Thus the causative *ha-ta* will always take a complement verb ending in *-key* or *-tolok*, the desiderative *siph-ta* will always take a complement verb ending in *-ko*, and the negative auxiliary *anh-ta* will always take a complement verb ending in *-ci*. (187) illustrates this point for *ha-ta*.

(187) a. Emeni-ka ai-lul **chwum.chwu-key** ha-si-ess-ta
mother-Nom child-Acc dance-Adv do-SHon-Pst-Dec
'The mother made the child dance.'

b. Emeni-ka ai-lul **chwum.chwu-tolok** ha-si-n-ta
mother-Nom child-Acc dance-Adv do-SHon-Pres-Dec
'The mother makes the child dance.'

c. Emeni-ka ai-lul **chwum.chwu-key ha-si-ko**
mother-Nom child-Acc dance-Adv do-SHon-Cmp
siph-usi-ta
want-SHon-Dec
'The mother wants to make the child dance.'

d. *Emeni-ka ai-lul **chwum.chwu-ko** ha-si-ess-ta
mother-Nom child-Acc dance-Adv do-SHon-Pst-Dec
'The mother made the child dance.'

e. *Emeni-ka ai-lul **chwum.chwu-ci** ha-si-ess-ta
mother-Nom child-Acc dance-Adv do-SHon-Pst-Dec
'The mother made the child dance.'

Heads normally specify VFORM information for verbal complements as part of their subcategorization. Complements have no corresponding way to require any endings on heads. The head-complement relation is exactly appropriate for the VFORM specification possibilities we see within verbal complexes.

3.2.2.4.4 Case Marking on Lower Verb Case markers can occur on the first verb in a verbal complex, but not the second. In active causative sentences such as (188a), accusative marking may appear after the *-key* suffix, but it does not occur after the final verb, as shown in (188b). We can see that this is not the result of any frozen form, because the facts are different in passive causative sentences. Here, accusative case marking is impossible on the verb. This is seen in (188c).

(188) a. Chelswu-ka Swuni-lul wus-key-**lul** hay-ss-ta
Chelswu-Nom Swuni-Acc smile-Adv-Acc do-Pst-Dec
Chelswu made Swuni smile.

b. *Chelswu-ka Swuni-lul wus-key hay-ss-ta-**lul**
Chelswu-Nom Swuni-Acc smile-Adv do-Pst-Dec-Acc
Chelswu made Swuni smile.

c. *Swuni-ka wus-key-**lul** ha-ye ci-ess-ta
Swuni-Nom smile-Adv-Acc do-Cmp PasAux-Pst-Dec
'Swuni was made to smile.'

The fact that case marking is also dependent on whether the verb is active or passive shows that this is genuine case marking, not a frozen compounded form.

3.2.2.4.5 Plural Copy on Lower Verb As Yookyung Kim (1992b) has discussed, it is a general property of spurious plural marking that a verb with a plural subject will license dependent plural marking on any complements of that verb. Thus, in (189), "copied" plural markers appear on *hakkyo-eyse* 'from school' and *nolay.ha-myense* 'while singing', licensed by the plural subject, *ai-tul-i* 'child-Plur-Nom', of the verb *w-ass-ta* 'came'.

(189) Ai-tul-i nolay.ha-myense-**tul** hakkyo-eyse-**tul** tol-a
child-Plur-Nom sing-while-Plur school-from-Plur return-Cmp
w-ass-ta
come-Pst-Dec
'The children came home from school while singing.'

In verbal complexes, the first verb can bear a plural marker if the subject of the auxiliary verb is plural, regardless of the plurality of the first verb's subject. The converse is not true. The relevant examples are given below in (190).[12]

(190) a. Ai-tul-i na-eykey iyaki-lul ha-key-**tul** hay-ss-ta
child-Plur-Nom I-Dat story-Acc tell-Adv-Plur do-Pst-Dec
'The children had me tell them a story.'

[12]As Yookyung Kim (1992b) notes, some speakers do not accept spurious plural markers in sentence-final position. These speakers would reject (190b) due to this factor alone. However, as Kim points out, the contrasts are still available to speakers with this restriction by reformulating the examples in question as embedded complements within a larger sentence.

b. *Nay-ka ai-tul-eykey iyaki-lul ha-key hay-ss-ta-**tul**
I-Nom child-Plur-Dat story-Acc tell-Adv-Plur do-Pst-Dec
'I had the children tell me a story.'

The asymmetry between a head licensing dependent plural marking on complements, without the converse being possible, applies exactly to the spurious plural marking properties within a verbal complex.

3.2.2.4.6 Conclusion: Head-Complement Verbal Complex As shown in the preceding discussion, assuming that an auxiliary verb is the head in a verbal complex which subcategorizes for the lower verb allows us to explain many properties as general head-complement phenomena. Assuming that both verbs were heads, or that the first verb was the head, would create the need for a separate explanation for tense, case, and plural marking, linear ordering, and determination of verbal forms in verbal complexes compared with other kinds of Korean sentences. Clearly, the head-complement account is superior.

3.2.2.5 Adding a Schema

In this section I consider the question of additional schemata beyond the ones in Pollard and Sag (1994), in light of my proposed Lexical Complex Schema. Each language may or may not make use of all the schemata, so we need not look for evidence in every language before using a schema. Also, languages may differ in how extensively they make use of any particular schema. Languages with *in situ wh-* elements need not rely on the Head-Filler Schema (Schema 6) that languages which front *wh-* elements must use. Thus the HPSG schemata based largely on the analysis of English could easily not take into account the true universal set of schemata.

The Lexical Complex Schema, however, may in fact be necessary for English, because HPSG analyses by Arnold & Sadler (1992) and Flickinger & Nerbonne (1992) use a similar kind of phrase for English. In each of these papers, two lexical items combine within a noun phrase to yield the correct subcategorization with information from each of the lexical items determining the subcategorization of the head. An example would be *so* and *few* in (191), where the phrase *so few* is headed by *few* but subcategorizes for a *that* phrase because of the non-head *so*.

(191) *The event attracted so few people that we were able to get front-row seats.*

Hinrichs and Nakazawa (1989, 1990, 1994) also make use of combination of non-phrasal, lexical items for the German verbal auxiliary system in a manner exactly parallel to my use of the Lexical Complex Schema for the Korean verbal auxiliary system.

Thus, the proposal of this additional schema may be supported by phenomena from a range of languages. The set of schemata in HPSG is intended to include all cross-linguistic possibilities, and additions should not be made lightly. However, the Lexical Complex Schema explains data from Korean, English, and German, and appears to be a useful, general addition to the set of HPSG schemata.

3.2.3 Argument Composition

Until this point, we have discussed the necessity for the structure of the verbal complex, for the Lexical Complex Schema to produce the verbal complex, and for the auxiliary verb in a verb complex to be the head, with the lower verb being a complement of the auxiliary verb. One more element is necessary for this analysis to produce Korean periphrastic causative sentences: all the arguments of the lower verb must become arguments of the verbal complex. Argument composition will give us this result.

Argument composition is the name for the syntactic composition of two argument-taking predicates, so that the higher predicate subcategorizes not only for the lower predicate, but also for the lower predicate's arguments.

Earlier lexicalist syntactic assumptions were that no relation-changing operations occurred in the syntax, but constructions like the Korean periphrastic causative show us that this assumption cannot be maintained. Alsina (1993, 1996) works out how to address the reality of relation-changing syntactic constructions in Lexical-Functional Grammar, with work along similar lines by Butt (1993). Argument composition allows us to permit grammatical relations to depend on the contributions of two separate lexical items brought together in the syntax.

In analyzing similar morphological and syntactic phenomena such as the Korean causatives, the position of the theoretical framework of the analysis on the organization of grammar becomes important. The distinction between the lexicon and the syntax in HPSG leads to certain expected differences in lexical vs. syntactic processes. Lexical processes can change information in lexical signs, but syntactic processes can only add information and more fully specify existing signs. Syntactic processes are expected to be productive, whereas lexical processes may be either productive or restricted in application.

The principle of monotonicity in lexicalist theories like HPSG requires lexical specification of how items can be inherited by one verb from another. Even though the arguments of the verbal complex come from both the lower verb and the auxiliary verb, the auxiliary verb as head of the phrase must have the same subcategorization as the mother node, minus any satisfied arguments, as required by the Valence Principle. Thus, the auxiliary verb's lexical entry must contain underspecified descriptions of the arguments it will inherit.[13]

Because argument composition occurs through lexical specification, it is not limited to any particular phrase structure, and can occur in flat structures as well as in

[13] An alternate view of argument composition was sketched by Isoda (1991), where he attributed the combination of valence lists from both the complement and the head to a new, modified form of the Subcategorization Principle which automatically concatenated both lists. In order to prevent duplication of arguments, as well as providing a means for the parent node to inherit only a subset of the complement's valence list, Isoda defined the special variable ♡ as a way for the head to lexically specify parts of the complement list which would not be inherited. Isoda's modified Subcategorization Principle is given below.

(192) **Isoda's (1991) Subcategorization Principle:**
In a headed phrase (i.e., a phrasal sign whose DTRS value is of sort *head-struc*), the SUBCAT value of the head daughter is the concatenation of the phrase's SUBCAT list with the list (in order of increasing obliqueness) of SYNSEM values of the complement daughters, minus the value of ♡, if it is defined.

As a matter of esthetics, my preferences are not to place argument composition directly in part of the Subcategorization Principle or the Valence Principle, and to positively specify the extent of argument composition, rather than to take argument composition as the default and lexically mark the exceptions as in Isoda's conception.

verbal complexes. Miller (1991) argues for argument composition for French auxiliaries in a flat structure, and this work has been continued by Abeillé and Godard (1994, forthcoming), Miller and Sag (1995, 1996), and Abeillé, Godard, Miller, and Sag (to appear, in progress). In Korean, argument composition outside of verb-verb complexes may be responsible for the small class of sentences in which the causative and complement verb are separated, as discussed in Chapter 2.

There may be a cross-linguistic tendency for elements involved in argument composition to occur linearly together and to occur in a constituent exclusive to those elements as part of a historical trend toward reanalysis of syntactic elements as new morphemes. The historical trends would produce many instances of argument compositions within verbal complexes, however, universal grammar would not place any restrictions on the structural configurations for argument composition, besides what can be derived from general properties of subcategorization.

3.2.4 Alternatives to Argument Composition

An alternative approach to mismatches between semantic constituents and word ordering is found in a series of papers exploring a wider division than I adopt here between possible string of words and other semantic and syntactic properties.

Zwicky (1986) outlines his direct liberation framework, in which daughters of a phrasal node can either be "concatenated" to form a single constituent in the ordinary manner, or they can be "liberated" to appear as sisters to the phrasal node which dominates them in a semantic sense. He describes this framework as useful for providing a representation of a flat structure for English sentences with several auxiliaries, for example, while still providing a possible VP structure for properties which require VP's. Thus, this approach could describe the Korean periphrastic causative as having its lower arguments optionally liberated out of a VP complement, while other VP complement sentences, such as those involving *seltuk.ha-ta* 'persuade', would not allow liberation of their lower elements.

Increasing the separation between surface word ordering and semantic structure, Dowty (1990) draws on Zwicky's work, as well as the distinction Curry (1963) makes between tectogrammatical and phenogrammatical structure. Tectogrammatical structure involves the semantically-based, compositional structure of a sentence, while phenogrammatical structure involves the actual appearance of the words in a string with a particular ordering, and with particular morphological or syntactic elements giving concrete realizations of certain abstract semantic or syntactic characteristics. Dowty maintains that the default assumption about a sentence must be that it is more string-like, and that any hierarchical structure must be directly motivated. Under this approach, phenomena such as apparent discontinuous constituents, extrapositions, parenthetical phrases, and clause unions become expected and natural, rather than the problem areas they were for more strictly linked constituent and semantic structures.

As a limit on the free ordering of elements in the phenogrammatical structure, Dowty proposes that each language has a set of bounding categories, such that daughter elements of a bounding category are not permitted to occur outside of that category's phrase. For example, Dowty says that S would be a bounding category in (probably) all languages, since even free word order languages do not permit elements to stray outside their own clauses, while NP would be a bounding category in some languages, but not others. Dowty assumes at least 16 categories for English, in the categorial grammar style of distinguishing items such as transitive verbs subcategorizing for noun phrases from transitive verbs subcategorizing for prepositional phrases, and so on. Thus, to apply this kind of analysis to Korean periphrastic causatives, we would need to be able to make a categorial distinction between the VP complement in sentences with *seltuk.ha-ta* 'persuade' and the supposed VP complement in causative sentences, so that ordinary VP complement sentences would involve a bounding category, while my "verbal complex" sentences would have no such limitation on their word order.

Reape (1990, 1993, 1994) makes a similar separation between syntactic structure and domain structure, where syntactic structure is the conventional, semantically-based structure, while domain structure involves the actual ordering of words in sentences. He proposes that elements of a phrase may either stay together and form a constituent, or they may undergo domain union, and thus be able to appear discontinuously or non-adjacently to each other as sisters to the node which would have been their mother node. Reape imposes the restriction on word orderings obtained through domain union that the relative order of elements of any daughter domain must be the same as it would have been had these elements remained within the phrase dominated by their mother. Among other phenomena in German syntax, Reape links the possibility of scrambling with the possibility of negative and adverbial scope ambiguities in sentences with raising verbs and subject control verbs which take no extra complement. Korean periphrastic causatives would be seen as allowing domain union for a supposed lower VP complement, while other VP complement sentences would not permit this domain union to occur.

Kathol (1995) cites Reape's work as inspiration (1995:107), and extends his ideas of a "fundamental dissociation between syntactic structure and linear order" (1995:102). New aspects of Kathol's approach include domain-objects which represent linear ordering of items without allowing reference to their internal constituent structure; a TOPOLOGY feature corresponding to traditional linear groupings of items in German syntax, to which LP rules can refer; and a separate VCOMP valence feature for verbal clusters and infinitival VP complements which have particular linear ordering properties. Kathol's analysis of German auxiliary constructions uses the same verbal complex structure as Hinrichs and Nakazawa (1989, 1990, 1994), with the verbal complements on the VCOMP valence list, and satisfied in verbal complexes by the Head-Verbal-Complement Composition Relation, with the [LEX +] feature specification ensuring that no phrasal items intervene (1995:231).

The freedom of word ordering seen in the Korean periphrastic causative presents a similar issue to that addressed by Zwicky, Dowty, Reape, and Kathol, but generally the phenomena they describe involve much more widespread free word ordering in a language. Thus, this line of research explores a more general lessening of syntactic theory's reliance on the word-by-word ordering of sentences, and a divorce of the surface string of words from the semantically compositional structure producing the sentence. My approach in this thesis involves the maintenance of as much linkage as possible between the semantically compositional structure of a sentence and its surface constituent structure, with motivated weakenings of these connections where research proves it necessary. Kathol calls argument composition a conservative extension (1995:82), and supports its existence in German on the basis of evidence that the arguments of non-finite complements have a real relation to the inheriting head (1995:95–102). Thus, these approaches to free word ordering are not incompatible, and both may be necessary to fully account for all syntactic phenomena in the best way. As research continues in this area, empirical evidence will determine the extent of the connection between linear order and syntactic constituency.

With word ordering separate from syntactic structure and semantics, constituent structure would not be seen as likely to affect syntactic properties other than those related closely to constituent structure, such as negative and adverbial scope. However, my approach to the free word ordering in causatives, in which argument composition allows a head to inherit arguments from its complement, involves the creation of a new head-argument correspondence. Thus, I expect argument composition to be apparent in properties reflecting the head that an argument combines with, such as Korean adverbial case marking reflecting the stativity or non-stativity of the head from whose COMPS list the adverb is satisfied.

A second way in which the mechanism of argument composition differs from the liberation or domain union kind of approaches is in the status of the inherited arguments. In argument composition, the inherited arguments are specified by a structure-sharing tag on the COMPS list of the lexical entry of the head. My analysis of Korean causatives involves the inheritance of all the arguments on the COMPS list of the lower verb, with the identification of the index of the lower subject with the index of the matrix causee argument.

It follows from the properties of HPSG that none of the inherited arguments can be duplicated in a lower phrase representation in addition to their matrix phrase representation because locality of subcategorization in HSPG does not allow heads to make reference to the internal structure of their arguments. The fact that the lower arguments are unrealized in the lower phrase means that they remain on the SUBJ and COMPS list and thus are visible to the higher verb which takes the lower verb as a complement. Realized arguments on the COMP-DTRS list are not available for subcategorization requirements and restrictions.

Beyond this natural restriction from the locality of subcategorization in HPSG, the mechanism of argument composition provides more freedom in possibilities than the alternate approaches. It would be possible for the higher verb to choose to inherit only the last item on the COMPS list, and leave the others, or to specify that it can only inherit accusative arguments, or make other such selections of subsets of the list of arguments.

My analysis of Korean causatives involves the causative auxiliary subcategorizing for a [LEX +] verb, and accordingly restricts the complement verb to a form in which none of its arguments are realized. However, it would be possible to create an argument composition analysis in which only a subset of the lower arguments are inherited by the higher verb, thus leaving the lower verb to combine with the uninherited arguments, as long as the language involved permitted VP's with incompletely satisfied COMPS list, as Korean does.

The additional range of possibilities provided by argument composition with regard to inheriting a subset of arguments may not end up being desirable in linguistic theory, if no evidence is found in any language to motivate them. If this is indeed the case, then constraints can be imposed on argument composition to bring it in line with a smaller conception of universal grammar.[14] We could constrain argument composition to occur only between [LEX +] items, and thus prevent partial constituents

[14]The Lexical-Functional Grammar theory of predicate composition proposed in Alsina (1993) includes several constraints for consideration. Alsina (1993:299-305) discusses constraints on constituent structure realizations of incomplete predicates, where an incomplete predicate is a predicate which is underspecified in its argument structure until it undergoes predicate composition, similar to argument composition. Alsina proposes the Incomplete Predicate Parameter, which states "The f-structure of an $X^{0(+1)}$ must have a complete predicate." If the parameter is set to the "0" value, then the language cannot have syntactically formed complex predicates, because it is impossible for any lexical item, i.e. an X^0, to occur as an incomplete predicate. If the parameter is set to the "0+1" value, then any phrasal nodes must be complete predicates, but lexical nodes may be incomplete predicates which will combine with other predicates, in syntactic complex predicates. Alsina argues that X-bar theory does not allow X^0's of major categories to occur as structural sisters to other X^0's of major categories, and thus all incomplete predicates must occur as lexical heads sister to a phrase headed by a complete predicate they combine with, producing $_{VP}$[V VP] structures for syntactically formed causatives.

of a verb and its uninherited arguments.[15] We could also add a constraint that argument composition could apply only to entire lists of elements, thus preventing a higher verb from lexically specifying a subset of the COMPS list. This constraint would allow the inheritance of the SUBJ list only, as in subject-to-object or subject-to-subject raising sentences, or the COMPS list only, as in Korean causatives, which inherit all the lower COMPS arguments, but only identify the lower subject with the causee. Presumably, some sentences could also involve the inheritance of both SUBJ and COMPS lists, with possible candidates being verbs like the Korean *po-ta* 'seem'.

At this point in the research on argument composition, it is too early to tell if the constraints just discussed are needed, or if there are instances in which some languages exceed those bounds. However, the form and content of these constraints appear to reflect linguistically natural possibilities. It is natural to restrict certain kinds of properties to lexical items, as opposed to phrases, and it is natural to deal with entire valence lists at a time. The fact that Korean facts support a distinction between argument composition of the SUBJ list alone vs. of the COMPS list alone is an argument in support of the Borsley-style HPSG with separate SUBJ and COMPS list, rather than the original style HPSG with a single, combined SUBCAT list.

In conclusion, while alternate approaches exist to problems of free word ordering, argument composition solves the word ordering problem in a way which provides the ability to relate inherited arguments to their new head, and to maintain the traditional closeness of surface constituent structure and semantically motivated constituents. Argument composition also allows for more varied ways of argument inheritance than liberation or domain union approaches, though empirical evidence may motivate the imposition of certain natural constraints on argument composition to eliminate these additional possibilities.

[15]This constraint may only hold true of certain languages in a typology of argument composition, as Miller and Sag (1995, 1996) argue that argument composition in French involves lexical heads for tense auxiliaries, but partially saturated heads for the copula *être* and other verbs taking predicative complements.

3.3 Morphology and Lexical Causatives

In this section, I set forth my theoretical assumptions regarding morphology, phonology, and the lexicon, and give a basic account of lexical causatives which further sections in this chapter will build upon. As in most work in HPSG (e.g. Pollard and Sag 1994:37), I adopt the Strong Lexicalist Hypothesis, namely, that both inflection and derivation take place within the lexicon (Selkirk 1982, Di Sciullo and Williams 1987). The Strong Lexicalist Hypothesis is essentially equivalent to the Lexical Integrity Principle, phrased in Bresnan and Mchombo (1995) as the claim that "words are built out of different structural elements and by different principles of composition than syntactic phrases." Under either formulation, this position leaves no question that, since lexical causatives form one morphological unit, they are formed within the lexicon and not through syntactic combination. Thus, the verbal complex discussion regarding periphrastic causatives does not apply to the syntactically inseparable lexical causatives. (193) demonstrates that the negation and discourse particles which could separate the lower verb from the periphrastic causative auxiliary cannot occur in the midst of the lower verb stem and the lexical causative suffix.

(193) a. Emeni-kkeyse ai-eykey kwaca-lul mek-i-ess-ta
mother-HNom child-Dat cookie-Acc eat-Caus-Pst-Dec
'The mother made the child eat a cookie.'

b. *Emeni-kkeyse ai-eykey kwaca-lul mek-**nun**-i-ess-ta
mother-HNom child-Dat cookie-Acc eat-Top-Caus-Pst-Dec
'The mother made the child eat a cookie.'

c. *Emeni-kkeyse ai-eykey kwaca-lul mek-**mos**-i-ess-ta
mother-HNom child-Dat cookie-Acc eat-cannot-Caus-Pst-Dec
'The mother could not make the child eat a cookie.'

Consequently, the specifically syntactic, and not lexical, aspects of lexical causative sentences are captured by the same Schemata which describe the syntactic combination of arguments with any transitive verb, namely, Schemata 1 and 2, describing the combination of elements into a complete S, and a VP. Analyzing lexical causatives as having the same syntactic constituent structure as ordinary transitive verbs predicts that lexical causatives will permit free scrambling of their NP arguments and their adjuncts, as do ordinary transitive Korean verbs. (194) shows that the predicted scrambling facts do indeed occur.

(194) a. Emeni-kkeyse ai-eykey kwaca-lul mek-i-ess-ta
mother-HNom child-Dat cookie-Acc eat-Caus-Pst-Dec
'The mother made the child eat a cookie.'

b. Emeni-kkeyse kwaca-lul ai-eykey mek-i-ess-ta
mother-HNom cookie-Acc child-Dat eat-Caus-Pst-Dec
'The mother made the child eat a cookie.'

c. Ai-eykey emeni-kkeyse kwaca-lul mek-i-ess-ta
child-Dat mother-HNom cookie-Acc eat-Caus-Pst-Dec
'The mother made the child eat a cookie.'

d. Ai-eykey kwaca-lul emeni-kkeyse mek-i-ess-ta
child-Dat cookie-Acc mother-HNom eat-Caus-Pst-Dec
'The mother made the child eat a cookie.'

However, lexical causatives provide an interesting counterpoint to periphrastic causatives in that lexical causatives are morphologically complex in exactly the same way that periphrastic causatives are syntactically complex. While we need not posit syntactic schemata or new constructions to explain lexical causatives, we do need an explanation of how the parts of the lexical causative combine and what they contribute. I will describe the lexical causative suffix as having similar lexical specifications to the periphrastic causative auxiliary, and determining the morphological structuring of the entire lexical causative verb in a parallel way to how the periphrastic causative auxiliary determines the syntactic structuring of the verbal complex. A lexical sign for the lexical causative suffix *-hi* is given in (195).[16] The symbol $\oplus$

[16]A complete account would give entries for all the phonological variants of the lexical causative, namely, *-i*, *-hi*, *-ki*, *-li*, *-wu*, *-chwu*, and *-kwu* (E. Baek 1984:115, K. Hong 1991b:188); however, since the phonological variation does not correspond to any syntactic or semantic properties, I abstract away from it here.

indicates the combination of items from two lists into a single, non-nested list, and is used in (195) to indicate that the verb stem's COMPS list begins with an NP indexed $\boxed{3}$ and is followed by the elements in the list "L", and that the COMPS list of the causative suffix consists of the verb stem, the least oblique COMPS item of the verb stem, the verb stem's SUBJ list item, and the elements of the list "L". Note that the lexical causative is generally parallel[17] to the periphrastic causative in the inheritance of arguments from the lower verb stem to the head causative suffix, as well as in the nested semantic relations of "cause" and the lower verb's semantic relation borne by the lexical causative verb.

(195)

$$\begin{bmatrix} \text{PHON} & \langle \text{ -hi } \rangle \\ \text{SYNSEM} & \begin{bmatrix} \text{CAT} & \begin{bmatrix} \text{VFORM} & \text{stem} \\ \text{SUBJ} & \langle \text{ NP}_{\boxed{1}} \rangle \\ \text{COMPS} & \left\langle \begin{bmatrix} \text{VFORM} & \text{min-stem} \\ \text{SUBJ} & \langle \text{ NP}_{\boxed{2}} \rangle \\ \text{COMPS} & \langle \text{ NP}_{\boxed{3}} \rangle \oplus \text{L} \\ \text{CONTENT} & \boxed{4} \end{bmatrix}, \text{NP}_{\boxed{3}}, \text{NP}_{\boxed{2}} \right\rangle \oplus \text{L} \end{bmatrix} \\ \text{CONTENT} & \begin{bmatrix} \text{RELN} & \text{cause} \\ \text{CAUSER} & \boxed{1} \\ \text{CAUSEE} & \boxed{2} \\ \text{SOA-ARG} & \boxed{4} \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

In addition to the information provided by the lexical causative suffix as head of the word it forms, I assume that morphemes generally combine according to binary morphological Schemata, such as a head-complement Schema for heads such as the lexical causative, or compounding Schemata reflecting specific compound properties.

[17]The inheritance of the lower object as less oblique than the causee is based on passive facts, as explored in Chapter 5. This ordering can be seen as reflecting the greater degree of grammaticalization of lexical causatives, compared to periphrastic causatives.

While nothing in my analysis hinges on the approach to morphology, I would like to make explicit the conception underlying the elements of the analysis of lexical causatives which I will present in the thesis. By providing a specific lexical entry for a suffix, in combination with Schemata regulating combination of morphemes, I take a position in line with the "word syntax" type approaches of Selkirk (1982) and Di Sciullo and Williams (1987), rather than with the greater reliance on lexical rules for morphology in Pollard and Sag (1994:352–353, 357, 390). My position also differs from the direction taken by Riehemann (1994), who outlines the use of a schema for each affix to indicate the organization of the existing lexicon, and to provide for the formation of new words. In my approach, hierarchical types for affixes and for which classes of words combine with which affix would be responsible for representing the generalizations within the lexicon. While I prefer the use of specific lexical entries for affixes, I also include lexical rules for phenomena where there is no visible affix, and no paradigmatic or other motivation for a null affix. My current lexical entries do not distinguish morphological SUBJ and COMPS lists from syntactic SUBJ and COMPS lists in the interests of simplicity, as long as there is no motivation for the distinction. The morphological subcategorization for VFORM's and NFORM's such as stems and roots would prevent unintended combination with entire words.

In the lexical entries for morphemes, not only the morphological subcategorization but also any phonological subcategorization can be represented. While the actual account will be too complex to include here, I will provide a sketch of ways in which the phonological side of HPSG could expand to reflect certain relevant phonological generalizations. The phonological patterning of some variant forms of the lexical causative, depending on the final consonant of the lower verb stem, could be modeled within an elaborated PHON value in the sign of the lexical causative. The generalization, as stated by K. Park (1986) is given below in (196).

(196) a. -*i* attaches to verbs ending in vowels, [h], [k]

b. -*ki* attaches to verbs ending in nasals, [kk], [s]

c. -*li* attaches to verbs ending in [l]

d. *-hi* attaches to verbs ending in stops or other fricatives

Exceptions Park notes are that *sit-* 'load' takes the causative suffix *-li*, when *-hi* would have been predicted, and *ilk* 'read' takes the causative suffix *-hi* when *-i* would have been predicted. Since the phonological patterning is a general tendency, and not an absolute determining factor of which form of the lexical causative suffix occurs, it may need to be mediated by phonological types or features.

Subcategorization in an elaborated PHON value will allow HPSG to incorporate the insights of Prosodic Lexical Phonology (Inkelas 1989, E. Han 1994) in which separate morphological and phonological subcategorization and structure are generally in accord, but can give rise to mismatches. For example, the phonological structure could show phonological phrase boundaries, having a complex structure of more than one phonological word for certain syntactic words, and indicate where extra phonological material can be added to an incomplete phonological word, for items such as suffixes.

While HPSG offers a ready place to incorporate rich, complex phonological structures and subcategorization,[18] in this thesis, I will continue the usual HPSG practice of using a very abbreviated PHON value in order to focus on the syntactic and semantic properties of lexical and periphrastic causatives. My "word syntax" view of morphology provides the formal means to represent parallel properties of lexical and periphrastic causatives in parallel ways, while still maintaining a theoretical distinction between lexical and syntactic combination. Lexical causatives, like periphrastic causatives, inherit the arguments of the lower verb and have a nested semantics.

With the basic constituent structure of both periphrastic and lexical causatives established, we can now begin to consider other syntactic and semantic issues concerning the Korean causatives.

3.4 Adverbs and Modification

[18]See Krieger and Nerbonne (1993) for an exploration of feature-based lexicons, with particular reference to HPSG.

Adverbial modification data provide a window onto the biclausal semantics of both periphrastic and lexical causatives. I examine the facts supporting the distinct nature of causatives, and show how their analysis in HPSG requires a lexical treatment of adjunct selection.

3.4.1 Adverbial Modification of Causatives

There are two adverbial properties relevant to the study of complex predicates: adverbial ambiguity, where a single adverb has two distinct senses as to what part of the action it applies to, and adverbial multiplicity, where two or more adverbs, which would conflict or infelicitously duplicate information in a simple sentence, occur. In this section, I provide examples of each kind in both periphrastic verbal complex causatives and in lexical causatives, comparing their properties to those of the completely biclausal periphrastic embedding causatives.

3.4.1.1 Adverbial Multiplicity

Adverbial multiplicity provides evidence of biclausal semantics because the two distinct semantic relations constitute two separate targets of modification for the two (or more) adverbs. The arguments in this section derive in large part from Patterson (1974). Adverbs which conflict outright, and thus leave no possible meaning in the intersection of their properties, cannot occur together in a single clause. In the example below of a simple sentence, the locations given by *cip-eyse* 'at home' and *samwusil-eyse* 'in her office' cannot both modify the same action, without special explanations, such as locating the office within the house.

(197) ***Cip-eyse** chinkwu-ka kumci toy-n chayk-ul **samwusil-eyse**
house-Loc friend-Dat prohibit PasAux-Pres book-Acc office-Loc
ilk-ess-ta
read-Pst-Dec
'At home my friend read the prohibited book in her office.'

Similarly, the same adverb cannot be repeated felicitously in a simple sentence. The meanings of the two instances of the adverb do not conflict, but pragmatics rules out repetition which has no force behind it.

(198) #**Khal-lo** ai-ka koki-lul **khal-lo** ssel-ess-ta
knife-with child-Nom meat-Acc knife-with cut-Pst-Dec
'With a knife, the child cut the meat with a knife.'

In biclausal sentences, the same pairs of adverbs can both occur if they modify the two different semantic relations. Examples illustrating this are given below.

(199) **Cip-eyse** chinkwu-ka [kumci toy-n chayk-ul **samwusil-eyse**
house-Loc friend-Dat prohibit PasAux-Pres book-Acc office-Loc
ilk-ess-tako] mal.hay-ss-ta
read-Pst-Quot say.Pst-Dec
'At home my friend said that she read the prohibited book in her office.'

(200) **Khal-lo** ai-ka [koki-lul **khal-lo** ssel-ko iss-nun] salam-ul
knife-with child-Nom meat-Acc knife-with cut-Cmp be-Pres person-Acc
nolaykhi-ess-ta
startle-Pst-Dec
'With a knife, the child startled the person cutting the meat with a knife.'

Periphrastic and lexical causatives resemble biclausal sentences in permitting conflicting adverbs or multiple iterations of the same adverb to co-occur, as long as they modify the separate semantic relations of causation and of the caused action.

(201) gives an example of a periphrastic causative with two locative adverbials describing two different places. Because the two locations correspond to the causation and the caused action respectively, the sentence is good.

(201) Cenhwa-lo **cip-eyse** nay-ka chinkwu-eykey kumci toy-n
telephone-by house-Loc I-Nom friend-Dat prohibit PasAux-Pres
chayk-ul **samwusil-eyse** ilk-key hay-ss-ta
book-Acc office-Loc read-Adv do-Pst-Dec
'By phone, at home I made my friend read the prohibited book in her office.'

In (202), we see a periphrastic causative with multiple manner adverbs, where *em.ha-key* 'sternly' modifies the causation and *chelce.hi* 'thoroughly' modifies the caused action.

(202) **Em.ha-key** nay-ka haksayng-tul-eykey chayk-ul **chelce.hi** ilk-key
stern-Adv I-Nom student-Plur-Dat book-Acc thorough-Adv read-Adv
hay-ss-ta
do-Pst-Dec
'Sternly I made the students read the book thoroughly.'

(203) shows that a periphrastic causative, like a biclausal sentence, can have two identical instrumental adverbials, because they modify the causation and the caused action separately.

(203) Weyithuleysu-ka **khal-lo** ai-eykey koki-lul **khal-lo** ssel-key
waitress-Nom knife-with child-Dat meat-Acc knife-with cut-Adv
hay-ss-ta
do–Pst-Dec
'With a knife, the waitress made the child cut the meat with a knife.'

The same adverbial multiplicity can be found in lexical causatives, although this point has been historically more contentious than the corresponding observation for periphrastic causatives (Shibatani 1973a, Patterson 1974, S. Song 1988).

(204) gives a lexical causative with the two different manner adverbs *em.ha-key* 'sternly' and *chelce.hi* 'thoroughly' modifying the causation and the caused action, respectively.

(204) **Em.ha-key** nay-ka haksayng-eykey chayk-ul **chelce-hi**
stern-Adv I-Nom student-Dat book-Acc thorough-Adv
ilk-hi-ess-ta
read-Caus-Pst-Dec
'Sternly I made the student read the book thoroughly.'

The two separate semantic relations also permit the occurrence of the same adverbial twice, as in (205), where the two instances of *khal-lo* 'with a knife' individually modify the causation and the caused action.

(205) Weyithuleysu-ka **khal-lo** ai-eykey koki-lul **khal-lo**
waitress-Nom knife-with child-Dat meat-Acc knife-with
ssel-li-ess-ta
cut-Caus-Pst-Dec
'With a knife, the waitress made the child cut the meat with a knife.'

Thus we have seen how lexical and periphrastic causatives both manifest adverbial multiplicity, due to their biclausal semantic nature.

3.4.1.2 Adverbial Ambiguity

Adverbial ambiguity is a second way in which adverbial modification provides evidence of the biclausal semantic structure of causatives. Additionally, adverb ambiguity demonstrates the monoclausal constituent structure of causatives. The two semantic relations in causatives allow two different readings for a single adverb, one in which the adverb modifies the causation and one in which it modifies the caused action. (Patterson 1974, K. Park 1986:28).

Biclausal sentences may have this same ambiguity when an adverb occurs next to the embedded clause boundary. One reading involves the adverb situated in the higher clause and thus modifying that higher clause, as in (206a), while the second reading involves the adverb situated in and modifying the lower clause, as in (206b).

(206) a. Nay-ka **ppalli** [ai-ka chayk-ul ilk-ess-tako] mal.hay-ss-ta
I-Nom quickly child-Dat book-Acc read-Pst-Quot do-Pst-Dec
'I quickly said the child read the book.'

b. Nay-ka [**ppalli** ai-ka chayk-ul ilk-ess-tako] mal.hay-ss-ta
I-Nom quickly child-Dat book-Acc read-Pst-Quot do-Pst-Dec
'I said the child read the book quickly.'

In contrast, biclausal sentences with adverbs not located adjacent to a clause boundary have only one reading for each adverb, modifying the clause in which the adverb is situated. Thus, in (207a), the adverb *ppalli* 'quickly' modifies the higher clause, while in (207b) it modifies the lower clause.

(207) a. **Ppalli** nay-ka [ai-ka chayk-ul ilk-ess-tako] mal.hay-ss-ta
quickly I-Nom child-Dat book-Acc read-Pst-Quot do-Pst-Dec
'I quickly said the child read the book.'

b. Nay-ka [ai-ka **ppalli** chayk-ul ilk-ess-tako] mal.hay-ss-ta
I-Nom child-Dat quickly book-Acc read-Pst-Quot do-Pst-Dec
'I said the child read the book quickly.'

In periphrastic causatives, adverbs are ambiguous between modifying the causation and the caused action, even when the adverb occurs in a position which would not be adjacent to a clause boundary on any account of causatives. In (208), the adverb *ppalli* 'quickly' is ambiguous between modifying the causation or caused action, whether it occurs between the lower object and lower verb as in (208a) or sentence-initially, non-adjacent to any elements relating to the lower clause, as in (208b).

(208) a. Emeni-ka ai-eykey chayk-ul **ppalli** ilk-key hay-ss-ta
mother-Nom child-Dat book-Acc quickly read-Adv do-Pst-Dec
'Mother made the child read the book quickly.'
or 'Mother quickly made the child read the book.'

b. **Ppalli** emeni-ka ai-eykey chayk-ul ilk-key hay-ss-ta
quickly mother-Nom child-Dat book-Acc read-Adv do-Pst-Dec
'Mother made the child read the book quickly.'
or 'Mother quickly made the child read the book.'

(209) gives further examples of ambiguous adverbs not located adjacent to a proposed clause boundary in a periphrastic causative. The locative adverbial phrase *pang-eyse* 'in the room' may modify either the causation or the caused action.

(209) a. Emeni-nun ai-eykey os-ul **pang-eyse** pes-key hay-ss-ta
mother-Top child-Dat clothes-Acc room-Loc take.off-Adv do-Pst-Dec
'The mother had the child take off the clothes in the room.'
or 'In the room, the mother undressed the child.'

b. **Pang-eyse** emeni-nun ai-eykey os-ul pes-key hay-ss-ta
room-Loc mother-Top child-Dat clothes-Acc take.off-Adv do-Pst-Dec
'The mother had the child take off the clothes in the room.'
or 'In the room, the mother undressed the child.'

In (210), we see yet another set of examples of ambiguous adverbs, whose constituent structure positions alone do not explain the ambiguity. The adverbial phrase in these examples is the instrumental phrase *khal-lo* 'with a knife', which either refers to causation by terror or to the instrument of cutting.

(210) a. Emeni-ka ai-eykey koki-lul **khal-lo** ssel-key hay-ss-ta
mother-Nom child-Dat meat-Acc knife-with cut-Adv do-Pst-Dec
'Mother made the child cut the meat with the knife.'

b. **Khal-lo** emeni-ka ai-eykey koki-lul ssel-key hay-ss-ta
knife-with mother-Nom child-Dat meat-Acc cut-Adv do-Pst-Dec
'With the knife, Mother made the child cut the meat.'

In lexical causatives, we see the same property of adverb ambiguity. In contrast to the periphrastic causatives, any proposed clause boundary to explain the adverbial modification differences would have to split the single word of the lexical causative. This fact means that the position of the adverb within the sentence is less important to theories prizing lexical integrity; however, I will continue to give various positions for the ambiguous adverbs in the examples below to establish this point regardless of the possibility of splitting the lexical causative verb into two clauses.

(211) gives examples of the manner adverb *ppalli* 'quickly' in lexical causative sentences, modifying either the haste of starting the causation or the haste of the caused reading.

(211) a. Emeni-ka ai-eykey chayk-ul **ppalli** ilk-hi-ess-ta
mother-Nom child-Dat book-Acc quickly read-Caus-Pst-Dec
'Mother made the child read the book quickly.'
or 'Quickly, Mother made the child read the book.'

b. Emeni-ka ai-eykey **ppalli** chayk-ul ilk-hi-ess-ta
mother-Nom child-Dat quickly book-Acc read-Caus-Pst-Dec
'Mother made the child read the book quickly.'
or 'Quickly, Mother made the child read the book.'

c. **Ppalli** emeni-ka ai-eykey chayk-ul ilk-hi-ess-ta
quickly mother-Nom child-Dat book-Acc read-Caus-Pst-Dec
'Mother made the child read the book quickly.'
or 'Quickly, Mother made the child read the book.'

The duration adverb *olay-tongan* 'for a long time' in (212) can modify either the causing action of dressing, or the resultant state of being dressed without regard to the causation.

(212) a. Emeni-ka ai-eykey ppalkan os-ul **olay-tongan**
mother-Nom child-Dat red dress-Acc long.time-during
ip-hi-ess-ta
wear-Caus-Pst-Dec
'Mother dressed the child with the red dress for a long time.'
or 'Mother made the child wear the red dress for a long time.'

b. Emeni-ka ai-eykey **olay-tongan** ppalkan os-ul
mother-Nom child-Dat long.time-during red dress-Acc
ip-hi-ess-ta
wear-Caus-Pst-Dec
'Mother dressed the child with the red dress for a long time.'
or 'Mother made the child wear the red dress for a long time.'

c. **Olay-tongan** emeni-ka ai-eykey ppalkan os-ul
long.time-during mother-Nom child-Dat red dress-Acc

ip-hi-ess-ta
wear-Caus-Pst-Dec
'Mother dressed the child with the red dress for a long time.'
or 'Mother made the child wear the red dress for a long time.'

Similar to (210), (213) demonstrates how the instrumental adverb *khal-lo* 'with a knife' can indicate causation by terror or the means of cutting in lexical causative sentences.

(213) a. Emeni-ka ai-eykey **khal-lo** koki-lul ssel-li-ess-ta
mother-Nom child-Dat knife-with meat-Acc cut-Caus-Pst-Dec
'Mother made the child cut the meat with the knife.'

b. Emeni-ka ai-eykey **khal-lo** koki-lul ssel-li-ess-ta
mother-Nom child-Dat knife-with meat-Acc cut-Caus-Pst-Dec
'Mother made the child cut the meat with the knife.'

c. Emeni-ka ai-eykey **khal-lo** koki-lul ssel-li-ess-ta
mother-Nom child-Dat knife-with meat-Acc cut-Caus-Pst-Dec
'Mother made the child cut the meat with the knife.'

The locative adverb *cip-eyse* 'at home' in (214) can have either the reading of modifying the location where the causation occurred or the location of the caused act of reading.

(214) a. Nay-ka chinkwu-eykey **cip-eyse** kumci toy-n chayk-ul
I-Nom friend-Dat house-Loc prohibit PasAux-Pres book-Acc
ilk-hi-ess-ta
read-Caus-Pst-Dec
'At home, I made my friend read the prohibited book.'
or 'I made my friend read the prohibited book at home.'

b. Nay-ka chinkwu-eykey **cip-eyse** kumci toy-n chayk-ul
I-Nom friend-Dat house-Loc prohibit PasAux-Pres book-Acc

ilk-hi-ess-ta
read-Caus-Pst-Dec
'At home, I made my friend read the prohibited book.'
or 'I made my friend read the prohibited book at home.'

c. Nay-ka chinkwu-eykey **cip-eyse** kumci toy-n chayk-ul
I-Nom friend-Dat house-Loc prohibit PasAux-Pres book-Acc
ilk-hi-ess-ta
read-Caus-Pst-Dec
'At home, I made my friend read the prohibited book.'
or 'I made my friend read the prohibited book at home.'

It appears that the semantics of lexical causatives is such that the adverbial ambiguities and multiplicities are not as easily produced as for the periphrastic causative. This contrast led Shibatani (1973a) to argue that lexical causatives never show ambiguities in adverbial scope, giving examples such as

(215) a. Pak-ssi-nun ai-lul namwu-ey **twu-son-ulo** ol-li-ess-ta
Park-Mr.-Top child-Acc tree-to two-hand-with go.up-Caus-Pst-Dec
'Mr. Park lifted the child up the tree with both hands.'
* 'Mr. Park made the child go up the tree using both hands.'

b. Emeni-nun **pang-eyse** ai-eykey os-ul pes-ki-ess-ta
mother-Top room-in child-Dat clothes-Acc take.off.Caus-Pst-Dec
'The mother undressed the child in the room.'
* 'The mother had the child take off the clothes in the room.'

Patterson (1974:20) and I. Yang (1976:82–85) accept Shibatani's examples, but not his overall conclusion. Shibatani's lexical causative examples are not ambiguous, but many lexical causatives do show adverbial ambiguity. S. Song (1988:197) summarizes a discussion of these facts with respect to place adverbials:

> "It is undoubtedly true, as Shibatani claims, that place adverbials are usually ambiguous in periphrastic causatives but not always with lexical causatives. But there is incontrovertible evidence that the lexical causative also exhibits the same kind of scope ambiguity when associated

> with the place adverbial. It may be that only a limited number of lexical causatives has this special property or that only a particular type of place adverbial can be associated with the constituents of lexical causative verbs. Although we must await further research, at the moment I am inclined to think that neither would be the case. I hope some day we will have semantic interpretive rules to tell us why the periphrastic causative always shows scope ambiguity of an adverbial modification, whereas the lexical causative is somewhat restrictive in this regard."

Given that my consultants have found adverbial ambiguity in the examples in this section, my position is to adopt a grammar providing for the widest range of the possibilities and to allow other principles and properties of Korean grammar, such as those determining preferred readings in ambiguous sentences, to be responsible for ruling out the sentences which do not occur.

3.4.2 Adverbial Facts in Embedding Causatives

The connection outlined above between the biclausal semantics of periphrastic and lexical causatives would be expected to carry over into the biclausal embedding causatives, allowing adverbs modifying each of the two nested semantic relations. Adverbial multiplicity should thus be seen in embedding causatives. However, adverbial ambiguity crucially involved two possible semantic relations for an adverb to modify while occurring in a single constituent structure clause. Since embedding causatives involve two constituent structure clauses, we will not expect to see the same ambiguity facts for embedding causatives as for verbal complex causatives.

The analysis of adverbial modification in verbal complex causatives holds clear implications for embedding causatives. I examine the facts below.

3.4.2.1 Multiplicity holds in Embedding Causatives

Adverbial multiplicity facts do hold for embedding causatives, with two different adverbs able to modify their two nested semantic relations. The following examples provide evidence for this point, with time adverbs in (216), instrumental adverbs in (217), manner adverbs in (218), and locative adverbs in (219).

(216) **Ecey** na-nun [Inho-ka **nayil** hankwuk-ulo ttena-key] hay-ss-ta
yesterday I-Top Inho-Nom tomorrow Korea-to leave-Adv do-Pst-Dec
'Yesterday I persuaded Inho to leave for Korea tomorrow.'

(217) Emeni-ka **chingchan.ha-myense** [ai-ka koki-lul **khal-lo**
Mother-Nom praising-while child-Nom meat-Acc knife-with
ssel-key] hay-ss-ta
cut-Adv do-Pst-Dec
'While praising the child, the mother made the child cut the meat with a knife.'

(218) **Em.ha-key** nay-ka [haksayng-i chayk-ul **chelce.hi** ilk-key]
stern-Adv I-Nom student-Nom book-Acc thorough-Adv read-Adv
hay-ss-ta
do-Pst-Dec
'Sternly I made the student read the book thoroughly.'

(219) Cenhwa-lo **cip-eyse** nay-ka [chinkwu-ka kumci toy-n
telephone-by house-Loc I-Nom friend-Dat prohibit PasAux-Pres
chayk-ul **samwusil-eyse** ilk-key] hay-ss-ta
book-Acc office-Loc read-Adv do-Pst-Dec
'By phone, at home I made my friend read the prohibited book in her office.'

Thus adverbial multiplicity clearly occurs in embedding causatives, as expected in any biclausal structure.

3.4.2.2 No Adverbial Ambiguity in Embedding Causatives

Lacking the crucial monoclausal constituent structure, embedding causatives do not show adverbial ambiguity (Patterson 1974:36). Ambiguity should be possible if the adverb occurs at a clause boundary, just as for ordinary biclausal sentences, but not otherwise.

The following examples support this point. There is only one reading for each sentence, with only one modification possible for the manner adverb *ppalli* 'fast' in

(220), the locative adverb *pang-eyse* 'in the room' in (221), and the instrumental adverb *khal-lo* 'with a knife' in (222).

(220)

Emeni-ka	[ai-ka	chayk-ul	**ppalli**	ilk-key]	hay-ss-ta
mother-Nom	child-Nom	book-Acc	quickly	read-Adv]	do-Pst-Dec

'Mother made the child read the book quickly.'

*'Mother quickly made the child read the book.'

(221)

Emeni-nun	[ai-ka	**pang-eyse**	os-ul	pes-key]	hay-ss-ta
mother-Top	child-Nom	room-Loc	clothes-Acc	take.off-Adv	do-Pst-Dec

'The mother had the child take off the clothes in the room.'

*'In the room, the mother undressed the child.'

(222)

Emeni-ka	[ai-ka	**khal-lo**	koki-lul	ssel-key]	hay-ss-ta
mother-Nom	child-Nom	knife-with	meat-Acc	cut-Adv	do-Pst-Dec

'Mother made the child cut the meat with the knife.'

* 'With the knife, mother made the child cut the meat.'

Thus the facts in embedding causatives support the generalizations behind the periphrastic and lexical causatives. Biclausal semantics allows two similar adverbs to appear modifying the two different semantic relations. Adverbial ambiguity requires both biclausal semantics and monoclausal constituent structure, so it will not occur in sentences with biclausal constituent structure, unless it can rely on different constituent structures corresponding to each reading.

3.4.3 Modification in HPSG

As a background for the analysis of the adverbial facts in causatives, we need to examine the different previous treatments of adverbial modification in simple sentences in HPSG. The central works of Pollard and Sag (1987) and (1994) differ on the issue of where primary responsibility for defining the modifier-head relationship lies.

Pollard and Sag (1987:159–166) describe a system in which the head specifies a set of SYNTAX values of acceptable adjuncts which can modify it. Adjuncts occur in constituent structure through the Head-Adjunct Rule, and unify their SYNTAX value with a value in the head's ADJUNCTS set according to the Adjuncts Principle.

Multiple adjuncts of the same SYNTAX value can occur, because they will each be able to unify their SYNTAX value with that in the ADJUNCTS set without contributing any contradictory information for other adjuncts.

Citing the "resistance" of the 1987 analysis to "a satisfactory account of how adjuncts contribute their content to the content of the phrases they occur in", Pollard and Sag (1994:55–57) take the opposite side of the issue, and argue that adjuncts select for the heads that they will combine with, instead of being selected for by the heads. Adjuncts bear a MOD feature, which specifies the kind of heads they are able to modify. When adjuncts occur in constituent structure through the Head-Adjunct Schema, the MOD value of the adjunct unifies with the SYNSEM value of the head.

Under this system, the adverb *ppalli* 'quickly' in a simple sentence like (223) would have a lexical entry as in (224).

(223)	Ai-ka	chayk-ul	ppalli	ilk-ess-ta
	child-Nom	book-Acc	quickly	read-Pst-Dec
	'The child read the book quickly.'			

(224)

$$\begin{bmatrix} \text{PHON} \ \langle \text{ ppalli } \rangle \\ \text{CAT} \begin{bmatrix} \text{MOD} \begin{bmatrix} \text{HEAD} \begin{bmatrix} \textit{verb} \end{bmatrix} \\ \text{CONTENT} \ \boxed{1} \end{bmatrix} \end{bmatrix} \\ \text{CONTENT} \ \boxed{1}[\text{MANNER quickly}] \end{bmatrix}$$

Unification of the MOD value of the adjunct with the SYNSEM value of the modified verb incorporates the MANNER information contributed by the adverb into the CONTENT of the verb.

An adverb such as *ppalli* 'quickly' can be thought of as having a CONTENT which will simply unify with the verb it modifies, but this will not be true for all adverbs, as adverbs with meanings such as "almost" or "allegedly" will have more complex interactions with the verb they modify. Thus, the more general form of a MOD value will involve the CONTENT of the verb playing some role in the CONTENT of the adverb and thus the resulting sentence, but not necessarily the simple role portrayed above. We can represent this more general form of an adverb with the following HPSG sign.

(225)

$$\begin{bmatrix} \text{MOD} \begin{bmatrix} \text{HEAD} \begin{bmatrix} \textit{verb} \end{bmatrix} \\ \text{CONTENT } \boxed{1} \end{bmatrix} \\ \text{CONTENT } \boxed{2}\begin{bmatrix}\text{ARG } \boxed{1}\end{bmatrix} \end{bmatrix}$$

With this background, we can examine the particular relevance of modification to causatives.

3.4.4 Complex Predicates and Modification in HPSG

The biclausal semantics of periphrastic and lexical causatives allows the separate modification of the higher and lower semantic relations in adverbial multiplicity and adverbial ambiguity. A causative with two adverbs modifying the two semantic relations, as in (202), repeated below, would have the MANNER information contributed by the two adverbs located in the two nested semantic CONTENT's, as seen in the HPSG sign for the CONTENT of the sentence in (226) given in (227).

(226)

Em.ha-key	nay-ka	haksayng-eykey	chayk-ul	**chelce.hi**	ilk-key
stern-Adv	I-Nom	student-Dat	book-Acc	thorough-Adv	read-Adv

hay-ss-ta
do-Pst-Dec
'Sternly I made the student read the book thoroughly.'

(227)

$$\left[\text{CONTENT}\left[\begin{array}{l}\text{RELN cause}\\ \text{CAUSER}\\ \text{CAUSEE }\boxed{1}\\ \text{SOA-ARG}\left[\begin{array}{l}\text{RELN read}\\ \text{READER }\boxed{1}\\ \text{READ}\\ \text{MANNER thoroughly}\end{array}\right]\\ \text{MANNER sternly}\end{array}\right]\right]$$

In adverbial ambiguity, there are two possible HPSG signs for the same sentence corresponding to the two possible readings. In an example like (210), repeated below, the adverbial phrase *khal-lo* contributes its semantic information to the higher relation in one reading, corresponding to the HPSG sign in (229), and to the lower relation in the other reading, reflected in the HPSG sign in (230).

(228) Emeni-ka ai-eykey koki-lul **khal-lo** ssel-key hay-ss-ta
mother-Nom child-Dat meat-Acc knife-with cut-Adv do-Pst-Dec
'Mother made the child cut the meat with the knife.'

(229)

$$\left[\text{CONTENT}\left[\begin{array}{l}\text{RELN cause}\\ \text{CAUSER}\\ \text{CAUSEE }\boxed{1}\\ \text{SOA-ARG}\left[\begin{array}{l}\text{RELN cut}\\ \text{CUTTER }\boxed{1}\\ \text{CUT}\end{array}\right]\\ \text{INSTRUMENT knife}\end{array}\right]\right]$$

(230)
$$\left[\begin{array}{ll}\text{CONTENT} & \left[\begin{array}{ll}\text{RELN} & \text{cause}\\ \text{CAUSER} & \\ \text{CAUSEE} & \boxed{1}\\ \text{SOA-ARG} & \left[\begin{array}{ll}\text{RELN} & \text{cut}\\ \text{CUTTER} & \boxed{1}\\ \text{CUT} & \\ \text{INSTRUMENT} & \text{knife}\end{array}\right]\end{array}\right]\end{array}\right]$$

The question now becomes how a general account of adjuncts explains the adverbial modification possibilities in causatives. In the Pollard and Sag (1994) system, we could explain the modification of the higher verb relation, because the MOD value of the adverb would combine the adverb's semantics with the CONTENT of the head, according to the Head-Adjunct Schema. The head of a periphrastic causative would be the verbal complex, headed by the causative verb, while the head of a lexical causative would be the lexical causative verb. In either case, the higher relation would be the one modified by the adverb because the higher relation corresponds to the head which combines with the adverb in constituent structure. The head corresponding to the lower relation, either the lower verb within the verbal complex, or the verb stem bearing the lexical causative suffix, is never sister to an adverb in constituent structure, and yet it can be modified by adverbs, which occur sister to the higher verb.

The key to resolving this situation is to break the direct link between constituent structure sisterhood and adverbial modification possibilities, and to replace it with an indirect link mediated by the valence lists.[19] If adverbs are added by a lexical

[19]Note that the problem here is not only how to permit adverbs to modify heads which are not sister to them in constituent structure, but also to constrain this non-sister modification to occur only in the specific instance of complex predicates such as causatives. Thus, using a mechanism such as functional uncertainty, as in Kaplan and Zaenen (1989), would not address the problem directly. Functional uncertainty could permit adverbs to modify indefinitely distantly embedded verbs, but restricting the non-sister modification to occur only with complex predicates would require a *functional* distinction between the verbal complements of complex predicates and other verbal complements.

rule to the COMPS list of the verb they modify, they will occur sister to arguments from the COMPS list. In most sentences, this approach will result in exactly the same modification possibilities for adverbs as the direct constituent structure-based approach. However, in causatives, items from the lower verb's COMPS list are inherited to the higher verb's COMPS list, and occur in constituent structure sister to a head to which they bear no semantic relation. This is precisely the situation of the adverbs in causatives, and adding adverbs to the COMPS list allows us to extend the advantages of our analysis of causatives beyond arguments to adjuncts as well.

Miller (1991:62–66), in a dissertation discussing French causatives, proposes a similar representation of adverbs, having them added to the SUBCAT list. In addition, van Noord and Bouma (1994) propose adding adjuncts to the SUBCAT list by a lexical rule in order to account for adjuncts modifying either the head verb or a lower verb in sentences with auxiliary verb clusters in Dutch. Iida, Manning, O'Neill, and Sag (1994), analyzing Japanese causatives, and Kim and Sag (1995), analyzing English and French negation, also use a lexical rule to add an adjunct onto a verb's COMPS list, and both papers relate the action of this rule to type raising in categorial grammar.

The Adjunct Addition Lexical Rule I propose is formulated as follows in (231). It resembles the rules from these other recent HPSG accounts in adding the adjunct to the COMPS list and in incorporating the original semantic CONTENT in the modified CONTENT, but differs from them in retaining limited syntactic CAT information in the MOD value of the adverb.

(231) **Adjunct Addition Lexical Rule**

$$\begin{bmatrix} \text{COMPS L} \\ \text{CONTENT } \boxed{2} \end{bmatrix}$$

$$\Longrightarrow$$

$$\begin{bmatrix} \text{HEAD } \boxed{1} \\ \text{COMPS L } \oplus \begin{bmatrix} \text{MOD} \begin{bmatrix} \text{HEAD } \boxed{1} \\ \text{CONTENT } \boxed{2} \end{bmatrix} \\ \text{CONTENT } \boxed{3}\begin{bmatrix}\text{ARG } \boxed{2}\end{bmatrix} \end{bmatrix} \\ \text{CONTENT } \boxed{3} \end{bmatrix}$$

The rule indicates the addition of the adjunct to the COMPS list by the $\oplus$ symbol between the original list "L" and the synsem value of the modifier, specified with its MOD value and its content. This formulation indicates that the adjunct is the most oblique element of the COMPS list; however, the relative placement of the adjunct on the list is not crucial for any part of this thesis. It is entirely possible that considerations of coindexing anaphora, linear order, or other correlates of obliqueness might be argued to require particular orderings of adjuncts on the COMPS list. These issues await further research.

As discussed in the preceding section, the CONTENT of the adjunct will unify with the CONTENT of the modified head, with the CONTENT of the original, unmodified head playing an argument role in the modified CONTENT. The CONTENT of the original, unmodified head is part of the MOD value of the adjunct, along with the syntactic HEAD information of the modified head.

In Pollard and Sag (1994:55-57), the entire SYNSEM value of the modified head is unified with the adjunct's MOD value. If we were to retain the SYNSEM-based MOD value here, we would encounter problems of arbitrarily great embedding within signs, with no real explanatory advantage to this computational complexity. This embedding would occur because the adjunct on the COMPS list has a MOD value which would be unified with the entire SYNSEM value of the basic input sign to the lexical rule. This input SYNSEM value contains the COMPS list before the adjunct was added. Thus, with one adjunct on the list, there is no circularity,[20] but we do have a certain degree of embedding within the sign the lexical rule produces, with a COMPS list in the SYNSEM value identified with the MOD value, on the adjunct on the COMPS list of the modified head, within its SYNSEM value. This state of affairs becomes more problematic once we consider recursive applications of the lexical rule, adding on further adjuncts. Each adjunct would have within its MOD value the COMPS list of the head with all the preceding adjuncts, and all the COMPS lists contained in their MOD values. Thus having several adjuncts on the COMPS lists results in a complex structure, with no real linguistic benefit. Only the existence of properties of the COMPS list determining the eligibility of the head to add an adjunct would be able justify this complexity. Since many properties of the COMPS list would be reflected in other places, such as *transitive* vs. *intransitive* types and in the CONTENT, it is not likely that we will need the COMPS list specifically in the MOD value.

I choose to retain the syntactic HEAD information in the MOD value as the sole included part from the CAT feature, unlike the recent HPSG accounts with adjunct addition lexical rules which do not address the syntactic part of the MOD value. Including the syntactic HEAD permits an adjunct to refer to the category information of the modified head. In Korean, as well as in Japanese, verbal nouns such as *kongpwu* 'study' resemble verbs in their semantic CONTENT, and may only be distinguishable in their syntactic category. A lexical rule which referred only to CONTENT would incorrectly allow a verbal noun to be modified by an adverb. Because the HEAD value of a sign would also include information other than category shared by the head of a phrase with the entire phrase, any other possible syntactic selection by adverbs would likely be expressed by my current formulation of the rule.

[20]Furthermore, circularity would not be a conclusive reason to reject an analysis. Carpenter (1992:35) states that cyclic structures are sometimes crucial, and that it can be more expensive for implementations to eliminate cycles than to allow them.

The Adjunct Addition Lexical Rule yields a derived head which subcategorizes for an adjunct, but most of the information contributed by the adjunct is not present in this lexical sign. In syntax, when the adjunct combines with the head, the specific information from the lexical entry of the adjunct, such as its CONTENT, will unify with the argument listed in the CONTENT of the head subcategorizing for it, and give the HPSG sign a more fully specified realization.

This approach retains Pollard and Sag's (1994) view of the adjunct as the primary determinant of what specific kinds of adjunct-head combinations are possible, but changes the licensing of the appearance of an adjunct from Pollard and Sag's (1994) syntactic Head-Adjunct Schema to the lexical Adjunct Addition Rule, with a narrower syntactic component in the MOD value. The appearance of adjuncts on the COMPS list in my account further contrasts with the Pollard and Sag (1987) approach in that I list each added adjunct as a separate, satisfiable item on the COMPS list, rather than a member of a set of types of acceptable adjuncts which are not satisfied.

The distinction between adjuncts and arguments in relation to a head is still preserved in the lexicon: only arguments are present in underived signs. Furthermore, phrases themselves are distinguishable as adjuncts or arguments by whether they have a MOD value.

This approach to adjuncts allows us to account for adverbs in simple sentences, since the verb they modify is the verb whose COMPS list they have been added to by the Adjunct Addition Lexical Rule. The identification of the adjunct's CONTENT with the modified head's CONTENT, $\boxed{3}$ in the rule, together with the input sign's CONTENT, $\boxed{2}$ in the rule, playing an ARG role within this modified CONTENT $\boxed{3}$, signifies which RELATION is being modified.

Under this account, the modification possibilities in biclausal sentences also follow. For an adverb to occur in a clause, it has to be on the COMPS list of the head verb. In sentences where an adverb is clearly located within a particular clause, as in (207), repeated below, the adverb will occur on the COMPS list of the verb sister to it and modify the semantic relation expressed by that verb. For (232a), the adverb *ppalli* 'quickly' is sister to the higher verb *mal.hay-ss-ta* 'said', and modifies the relation of "saying". (232b) involves the same adverb, *ppalli* 'quickly', sister to the embedded verb *ilk-ess-tako* 'read', thus occurring on its COMPS list, and modifying the "reading" relation.

(232) a. **Ppalli** nay-ka [ai-ka chayk-ul ilk-ess-tako] mal.hay-ss-ta
quickly I-Nom child-Dat book-Acc read-Pst-Quot do-Pst-Dec
'I quickly said the child read the book.'

b. Nay-ka [ai-ka **ppalli** chayk-ul ilk-ess-tako] mal.hay-ss-ta
I-Nom child-Dat quickly book-Acc read-Pst-Quot do-Pst-Dec
'I said the child read the book quickly.'

The particular adverbial modification properties of the periphrastic and lexical causatives fall out from the formulation of the Adjunct Addition Lexical Rule and the inheritance of arguments to the causative verb's COMPS list in both forms of causative.

In the case of the periphrastic causative, adverbial multiplicity would result if both the lower verb and the causative auxiliary each had adverbs added to their COMPS lists by the Adjunct Addition Lexical Rule, with these added adverbs lexically specified as modifying the relation of the verb to which they were added. The syntactic combination of these two verbs to form a verbal complex headed by the causative auxiliary results in all adverbs from either verb occurring on the causative verb's COMPS list. The inheritance of arguments does not specify anything about the semantic relations of the verbs involved, and the modifications of the adverbs remain unchanged, allowing distinct modifications of either the lower verb or the causative verb.

We can illustrate these points with HPSG signs for the verbal complex and for the entire sentence in (226), which exemplifies multiple manner adverbs modifying both higher and lower verbs.

The two verbs *hay-ss-ta* 'caused' and *ilk-key* 'read' each have a lexical entry with an adverb on their COMPS list, due to the Adjunct Addition Lexical Rule. Each adverb's CONTENT is identified with the CONTENT of the verb it modifies, and the CONTENT of the lexical entry of the basic, unmodified verb functions as an argument in the modified CONTENT. When these two verbs combine in the verbal complex, both adverbs end up on the COMPS list for the verbal complex, as given below in (233). Their CONTENT's remain identified with the CONTENT of the verb to which they were lexically added, as indicated by the different numerical tags, and the CONTENT's from the lexical entries of the original, unmodified verbs are present as arguments in this modified CONTENT.

(233)

$$\begin{bmatrix} \text{PHON} & \langle \text{ ilk-key hay-ss-ta } \rangle \\ \text{CAT} & \begin{bmatrix} \text{SUBJ} & \langle \text{ NP}_{\boxed{1}} \rangle \\ \text{COMPS} & \left\langle \text{NP}_{\boxed{2}},\ \text{NP}_{\boxed{4}},\ [\text{CONTENT } \boxed{3}],\ [\text{CONTENT } \boxed{5}] \right\rangle \end{bmatrix} \\ \text{CONTENT } \boxed{5} & \begin{bmatrix} \text{ARG} & \begin{bmatrix} \text{RELN cause} \\ \text{CAUSER } \boxed{1} \\ \text{CAUSEE } \boxed{2} \\ \text{SOA-ARG } \boxed{3} \begin{bmatrix} \text{ARG} & \begin{bmatrix} \text{RELN read} \\ \text{READER } \boxed{2} \\ \text{READ } \boxed{4} \end{bmatrix} \end{bmatrix} \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

After the items on the SUBJ and COMPS lists combine with the verbal complex, the sentence in (226) will have the sign in (234). The SUBJ and COMPS lists are empty, and the SUBJ-DTR and COMP-DTRS lists contain the satisfied items. Because the adverbs have combined with the verbal complex, the specific semantic information from the adverbs now forms part of the semantic CONTENT of the sign.

(234)
$$\left[\begin{array}{l}
\text{PHON} \ \langle \text{ Em.ha-key nay-ka haksayng-eykey chayk-ul chelce.hi} \\
\quad \text{ilk-key hay-ss-ta } \rangle \\
\text{CAT} \left[\begin{array}{l} \text{SUBJ} \ \langle \ \rangle \\ \text{COMPS} \ \langle \ \rangle \end{array}\right] \\
\text{CONTENT} \ \boxed{5} \left[\begin{array}{l}
\text{RELN cause} \\
\text{CAUSER} \ \boxed{1} \\
\text{CAUSEE} \ \boxed{2} \\
\text{SOA-ARG} \ \boxed{3} \left[\begin{array}{l} \text{RELN read} \\ \text{READER} \ \boxed{2} \\ \text{READ} \ \boxed{4} \\ \text{MANNER thoroughly} \end{array}\right] \\
\text{MANNER sternly}
\end{array}\right] \\
\text{DTRS} \left[\begin{array}{l}
\text{SUBJ-DTR} \ \langle \text{ NP}_{\boxed{1}} \rangle \\
\text{COMP-DTRS} \left\langle \text{NP}_{\boxed{2}}, \ \text{NP}_{\boxed{4}}, \ [\text{CONTENT} \ \boxed{3}], \ [\text{CONTENT} \ \boxed{5}] \right\rangle
\end{array}\right]
\end{array}\right]$$

Thus, the application of the Adjunct Addition Lexical Rule to the lexical items which happen to come together in the causative verbal complex, together with the same basic principles required elsewhere in the grammar, is sufficient for adverbial multiplicity in periphrastic causatives.

In adverbial multiplicity in lexical causatives, the Adjunct Addition Lexical Rule applies once to the verb stem, adding an adverb which modifies the lower relation, then the Rule applies again to the full lexical causative, after the causative affix has combined with the verb stem, this time adding an adverb which modifies the higher, causative relation. This results in a verb with a lexical entry essentially identical to the HPSG sign for the verbal complex of a periphrastic causative given in (233). The two adverbs modify distinct semantic relations because of the different lexical signs they were added to, but both of them are on the same COMPS list due to the general way that the lexical causative inherits all items from the verb stem's COMPS list. Thus lexical causatives permit the same adverbial multiplicity as periphrastic causatives, through a similar, though slightly different, interaction of Rules and principles.

Adverbial ambiguity in periphrastic causatives results if only one of the two verbs has an adverb added lexically. The ambiguity corresponds to the fact that adverbs modifying either the lower verb or the causative verb through lexical specification will be indistinguishable in terms of COMPS list membership in the causative verbal complex.

(235) gives the HPSG sign for the ambiguous sentence in (228), under the reading where *khal-lo* 'with a knife' modifies the higher, causation relation. All arguments have been satisfied in this sign, with the satisfied adverbs listed on the COMP-DTRS list. Because the adverb has combined with the verb, it has contributed its specific semantic information to the CONTENT of the higher verb, in this case. This semantic combination results from the identification of the CONTENT of the adverb with the CONTENT of the modified verb, and from the CONTENT from the verb's original lexical entry functioning as an argument in the modified CONTENT.

(235)

$$\left[\begin{array}{ll} \text{CAT} & \left[\begin{array}{ll}\text{SUBJ} & \langle\ \rangle \\ \text{COMPS} & \langle\ \rangle\end{array}\right] \\ \text{CONTENT } \boxed{4} & \left[\begin{array}{ll} \text{RELN} & \text{cause} \\ \text{CAUSER} & \boxed{1} \\ \text{CAUSEE} & \boxed{2} \\ \text{SOA-ARG} & \left[\begin{array}{ll}\text{RELN} & \text{cut}\\ \text{READER} & \boxed{2} \\ \text{READ} & \boxed{3}\end{array}\right] \\ \text{INSTRUMENT} & \text{knife}\end{array}\right] \\ \text{DTRS} & \left[\begin{array}{ll}\text{SUBJ-DTR} & \langle\ \text{NP}_{\boxed{1}}\ \rangle \\ \text{COMP-DTRS} & \left\langle \text{NP}_{\boxed{2}},\ \text{NP}_{\boxed{3}},\ [\text{CONTENT } \boxed{4}] \right\rangle\end{array}\right]\end{array}\right]$$

(236) gives the HPSG sign for the other reading for the sentence in (228), where *khal-lo* 'with a knife' modifies the lower verb's relation. The CONTENT of the adverb is identified with the CONTENT of the lower verb, with the original unmodified CONTENT from the original lexical entry of the verb functioning as an argument

in this CONTENT. Thus, when the adverb combined syntactically with the verbal complex, it contributed the specific semantic instrument information to the lower relation.

(236)

$$\begin{bmatrix} \text{CAT} & \begin{bmatrix} \text{SUBJ} & \langle\ \rangle \\ \text{COMPS} & \langle\ \rangle \end{bmatrix} \\ \text{CONTENT} & \begin{bmatrix} \text{RELN} & \text{cause} \\ \text{CAUSER} & \boxed{1} \\ \text{CAUSEE} & \boxed{2} \\ \text{SOA-ARG} & \boxed{4} \begin{bmatrix} \text{RELN} & \text{cut} \\ \text{READER} & \boxed{2} \\ \text{READ} & \boxed{3} \\ \text{INSTRUMENT} & \text{knife} \end{bmatrix} \end{bmatrix} \\ \text{DTRS} & \begin{bmatrix} \text{SUBJ-DTR} & \langle\ \text{NP}_{\boxed{1}}\ \rangle \\ \text{COMP-DTRS} & \left\langle\ \text{NP}_{\boxed{2}},\ \text{NP}_{\boxed{3}},\ [\text{CONTENT}\ \boxed{4}]\ \right\rangle \end{bmatrix} \end{bmatrix}$$

Lexical causatives again are similar to periphrastic causatives. The Adjunct Addition Lexical Rule applies once, to either the verb stem or to the complete lexical causative headed by the causative affix. The adverb will modify the relation corresponding to the COMPS list to which it was added. The fact that the adverb can be added to the verb stem allows an adverb to modify the lower relation, while the inheritance of all items to the lexical causative verb's COMPS list means that all adverbs will occur together on the COMPS list regardless of their origin.

By adopting the Adjunct Addition Lexical Rule, we now have a general account of adjuncts, which extends naturally to cover the adverbial modification possibilities in causatives. We have broken the direct link between constituent structure sisterhood and adverbial modification possibilities, and replaced it with an indirect link mediated by the valence lists. As a result, adverbial multiplicity and adverbial ambiguity are explained for both lexical and periphrastic causatives, without falsely predicting adverbial ambiguity in biclausal sentences.

3.5 Semantics of Causation

In accounts of Korean causatives throughout the 1970's, much attention focussed on the question of whether lexical and periphrastic causatives were synonymous, or if lexical causatives represented a more direct sort of causation than periphrastic causatives. At that time, semantic differences were relevant to determining the deep structures needed for syntactic analysis. Because current linguistic theory would not consider it grammatically economical to derive one of these kinds of causatives from the other through transformations, the semantic differences have become less of a driving syntactic issue.

In this section, I will review past work in the semantics of Korean causatives, moving from the synonymy issue to differences in directness of causation. Subsequently, I will propose a link between directness of causation and the restrictions on time adverbials in lexical causatives. The semantic property of presupposition of existence also deserves mention here for distinguishing lexical and periphrastic causatives. In closing, I outline the semantic differences between agentive and obviative lexical causatives, and how these differences are reflected in HPSG.

3.5.1 Synonymy of Lexical and Periphrastic Causatives

While some accounts argued that the lexical and periphrastic causatives have the same semantics, subtle differences in acceptability or appropriateness in many situations between the two forms indicate that this exact equivalence cannot be correct. Furthermore, even accounts adopting the synonymy viewpoint excluded the permissive reading of the periphrastic causative in order to equate it with the lexical causative.

The connection between semantics and deep structure in the 1970's made the synonymy hypothesis attractive. I. Yang (1972:203) declares "Since the long-form [periphrastic] causative (in the causative reading, excluding the permissive reading) and the short-form [lexical] causative are synonymous, we can assume that they have the same deep structure." The synonymy position continues into the 1980's, with K. Park (1986:6) echoing Yang's statement: "The morphological causatives ... are synonymous with their corresponding periphrastic causatives, except that only the latter allow an additional permissive interpretation."

The similarities in semantics between lexical and periphrastic causatives which allowed the synonymy hypothesis as a serious position are reflected in the CONTENT I have assigned to causatives in my analysis. Both lexical and periphrastic causatives have a CAUSE RELATION, with CAUSER, CAUSEE and a STATE-OF-AFFAIRS ARGUMENT, which consists of the RELATION and semantic arguments of the lower verb. At this coarse level of analysis, I treat lexical and periphrastic causatives the same. However, a more fully developed semantic representation would reflect the more subtle differences explored later in this section. Thus, I will not claim that the two causatives are synonymous, but merely that they share certain semantic properties.

Yang (1972:202) illustrates the distinct permissive meaning of the periphrastic causative by the translation of 'permit to smile' for *wus-key ha-ta*, in contrast to the causative meaning 'cause to smile' for both *wus-key ha-ta* and *wus-ki-ta*. Patterson (1974:19) extends the description of this particular meaning of the periphrastic causative to include a sense of enabling the causee to perform the act, in addition to the sense of permitting described by Yang. The following examples, based on Patterson's, illustrate how a periphrastic causative can have the enabling reading while a lexical causative cannot.

(237) a. Uysa-ka cang.ay.ca-lul ket-key hay-ss-ta
doctor-Nom disabled person-Acc walk-Adv do-Pst-Dec
'The doctor made (it possible for) the disabled person (to) walk.'

b. Uysa-ka cang.ay.ca-lul kel-li-ess-ta
doctor-Nom disabled person-Acc walk-Caus-Pst-Dec
*'The doctor made (it possible for) the disabled person (to) walk.'
'The doctor caused the disabled person to walk.'

Besides this permissive or enabling meaning of the periphrastic causative, there are various contexts where corresponding lexical and periphrastic causatives have different meanings or acceptabilities. S. Song (1988:171–2) provides several such contexts, as in his minimal pair below.

(238) a. Salinca-nun salam-ul cwuk-i-n ca-i-ta
murderer-Top person-Acc kill-Caus-Pst person-be-Dec
'A murderer is someone who has killed a person.'

b. *Salinca-nun salam-ul cwuk-key ha-n ca-i-ta
murderer-Top person-Acc kill-Adv do-Pst person-be-Dec
'A murderer is someone who has caused a person to die.'

Assuming that the periphrastic and lexical causatives have identical semantics would make it impossible to account for contrasts such as the one above. Still, the precise semantic difference is elusive. S. Song (1988:215) says "Patterson, like all her predecessors including myself, fails to pin down a relevant semantic feature unique to the lexical causative." For this reason, I will not attempt to provide an HPSG representation of the semantic difference between lexical and periphrastic causatives, leaving this problem for future research.

3.5.2 Direct and Indirect Causation

The semantic distinction most often claimed to differentiate lexical and periphrastic causatives is the directness of the causation. Patterson (1974:16) cites B. Park (1972) for noting "a subtle, but clear difference between the two causatives: phrasal [periphrastic] causatives involve indirect participation of the subject NP whereas the suffixal construction [the lexical causative] involves a direct commitment."

In support of this position, Shibatani (1973a) gives pairs of examples illustrating both sides of this correlation: that indirect causation requires a periphrastic causative, while direct causation requires a lexical causative.

In the situation where one writes a letter to influence a distant nudist friend to wear clothes, Shibatani writes that the periphrastic causative *ip-key ha-ta* 'to cause to get dressed' is appropriate and acceptable, because it expresses indirect causation. In this situation, the corresponding lexical causative *ip-hi-ta* 'to dress' is not acceptable, because the causer is not directly involved in carrying out the event.

The same pair of causatives have an opposite pattern of acceptability in a situation involving a causee who cannot perform the action of the lower verb without direct involvement of the causer. Shibatani characterized the use of the periphrastic causative in (239a) as only appropriate for describing a miraculous event, where a 3-month-old baby has the extraordinary ability to put on clothes without assistance. In dealing with any 3-month-old baby of normal abilities, the use of the lexical causative, as in (239b), is appropriate for indicating the direct involvement of the causer in the caused action.

(239) a. Na-nun sek-tal-toy-n aki-eykey os-ul ip-key
I-Top 3-month-become-Pst baby-Dat clothes-Acc wear-Adv
hay-ss-ta
do-Pst-Dec
'I had the 3-month-old baby put on the clothes.'

b. Na-nun sek-tal-toy-n aki-eykey os-ul ip-hi-ess-ta
I-Top 3-month-become-Pst baby-Dat clothes-Acc wear-Caus-Pst-Dec
'I dressed the 3-month-old baby.'

Patterson (1974:5–6) gives a similar minimal pair; however, she describes the lexical causative sentence as having either direct or indirect readings possible, contrasted with a periphrastic causative which does not have the direct causation reading.

(240) Emeni-ka Yenghi-eykey say-os-ul ip-hi-ess-ta
mother-Nom Yenghi-Dat new-clothes-Acc wear-Caus-Pst-Dec
'Mother caused Yenghi to wear new clothes'./ 'Mother dressed Yenghi with the new clothes.'

(241) Emeni-ka Yenghi-eykey say-os-ul ip-key hay-ss-ta
mother-Nom Yenghi-Dat new-clothes-Acc wear-Adv do-Pst-Dec
'Mother caused Yenghi to wear new clothes'.

I. Yang (1976:61–62) discusses Shibatani's contrast and says that while the periphrastic causative, as seen in the example (but not translation) in (239a), is not the most natural way to express the concept of dressing a baby, it is an acceptable "logical paraphrase" for that meaning, a meaning which necessarily involves direct causation.

In another argument against ruling out the direct causation reading for the periphrastic causative, Yang (1976:64) discusses possible verb choices to describe a very direct act of killing. The directness of the act does not rule out the periphrastic causative in (242b). The lexical causative in (242c) is also acceptable, as is the expression preferred by newspapers, a periphrastic causative of a more euphemistic verb than *cwuk-ta* 'die', namely *swum-ci-key ha-ta* 'cause one's breath to be ceased'.

(242) a. Taxi-kangto-ka wunconswu-lul ccill-ese **swum-ci-key hay-ss-ta**
taxi-robber-Nom driver-Acc stab-and breath-cease-Cmp do-Pst-Dec
'The taxi robber killed the driver by stabbing him.'

b. Taxi-kangto-ka wunconswu-lul ccill-ese **cwuk-key hay-ss-ta**
taxi-robber-Nom driver-Acc stab-and die-Cmp do-Pst-Dec
'The taxi robber killed the driver by stabbing him.'

c. Taxi-kangto-ka wunconswu-lul ccill-ese **cwuk-i-ess-ta**
taxi-robber-Nom driver-Acc stab-and die-Caus-Pst-Dec
'The taxi robber killed the driver by stabbing him.'

A final part to Yang's argument that periphrastic causatives can express direct causation is the fact that periphrastic causatives must be used to express direct causation in any situation where no lexical causative exists based on the verb stem in question (I. Yang 1976:69–70). The lexical causative is not productive, and only a limited number of verbs have lexical causatives. In the example below, Yang illustrates a situation where a periphrastic causative describes a direct action, where no counterpart lexical causative of the lower verb *masi-ta* 'drink' exists.

(243) John-i umciki-ci mos ha-nun hwanca-eykey mwul-ul
John-Nom move-Cmp cannot NegAux-Pres patient-Dat water-Acc
ip-ey pwu-ese, masi-key hay-ss-ta
mouth-to pour-and drink-Adv do-Pst-Dec
'John made the patient who couldn't move drink water, by pouring water into his mouth.'

Yang (1976:63) then demonstrates the converse situation: lexical causatives can be more appropriate than periphrastic causatives for a situation where the causer does not exert any direct force on the causee. He gives the example below, where (244a) with a lexical causative is preferred to (244b) with a periphrastic causative.

(244) a. Oypwusonim-ul mence tha-yu-psita
visitor-Acc first get.on-Caus-Propos
'Let's make the visitors get on (the elevator) first.'

b. Oypwusonim-ul mence tha-key ha-psita
visitor-Acc first get.on-Adv do-Propos
'Let's make the visitors get on (the elevator) first.'

In light of Yang's examples, it appears difficult to retain the restriction of direct causation to lexical causatives and indirect causation to periphrastic causatives. S. Song (1988:201) recognizes Yang's contribution by writing, "I. Yang's demonstration of the lack of a one-to-one correspondence between the lexical and periphrastic causatives and direct and indirect causation respectively will remain a lasting contribution to the study of Korean causatives." A full semantic representation of causatives should attempt to explain the general tendency for lexical causatives to represent direct causation, while periphrastic causatives represent indirect causation, but it will also have to allow for variations from this prototype.

3.5.3 Time and Location Adverbials

As concluded in the previous section, a complete semantic account of Korean causatives would represent the general tendency of lexical causatives to involve more direct causation than periphrastic causatives. Further research in this area might isolate a single, possibly abstract, underlying factor in the contrast between lexical and periphrastic causatives, but adopting a preliminary crude approximation of the contrast can lead to useful results. If we take occurrence at the same time and location as our characterization of the greater "directness" of lexical causatives, we will not rule out Yang's example of indirect causation in a lexical causative in (244). Furthermore, we can now explain a contrast between lexical and periphrastic causatives often attributed to a clausality difference: lexical causatives, in contrast to periphrastic causatives, cannot have different time adverbials for the time of the causation and the time of the caused event. This contrast is illustrated below, with the grammatical periphrastic causative in (245) and the ungrammatical lexical causative in (246).

(245) Nay-ka haksayng-eykey **hwayoil-ey** **kumyoil-ey** chayk-ul ilk-key
I-Nom student-Dat Tuesday-Dat Friday-Dat book-Acc read-Adv
hay-ss-ta
do-Pst-Dec
'I made the student read the book on Tuesday on Friday.'

(246) *Nay-ka haksayng-eykey **hwayoil-ey** **kumyoil-ey** chayk-ul
I-Nom student-Dat Tuesday-Dat Friday-Dat book-Acc
ilk-hi-ess-ta
read-Caus-Pst-Dec
'I made the student read the book on Tuesday on Friday.'

Location adverbs are not generally mentioned as having the same restrictions on their occurrence in lexical causatives as time adverbials; however, for at least one of my consultants, the two conflicting locative adverbs (247) cannot co-occur with a lexical causative, even if interpreted as separately modifying the causation and the caused action. Recall that the corresponding sentence with a periphrastic causative in (201) was fine.

(247) *Cenhwa-lo **cip-eyse** nay-ka chinkwu-eykey kumci toy-n
telephone-by house-Loc I-Nom friend-Dat prohibit PasAux-Pres
chayk-ul **samwusil-eyse** ilk-hi-ess-ta
book-Acc office-Loc read-Caus-Pst-Dec
'By phone, at home I made my friend read the prohibited book in her office.'

The analysis of the identification of the time and location of the causation and the caused event as the explanation for the difference in multiple time adverbial acceptability will await not only confirmatory research on directness in Korean lexical and periphrastic causatives, but also in the refinement of the architecture of HPSG semantics of referring to time. Pollard and Sag (1994:29 fn.23) give a brief indication of the possible representation of event time and tense, but further work in HPSG may yield more precise descriptions of how time relates to general semantic CONTENT. Along these lines, see Crow (1990) for discussion of the concept of location in situation semantics, including the degree to which temporal and spatial location are interconnected.

While it is not crucial to the analysis to group together time and spatial location in a single feature in order for both to be shared between the causation and caused event, this grouping allows us to state the generalization more simply, and it follows in the tradition of Barwise and Perry's (1983:51) four-dimensional space-time regions. I will list SPATIAL and TEMPORAL as features within the LOCATION feature in semantic CONTENT, somewhat similar to Barwise and Perry's identification of each location with a set of pairs $< p,\ t >$, consisting of a point of space, p, and an instant of time, t. The lexical causative morpheme would have the semantics in its lexical entry in (248), while the periphrastic causative would contain no specific mention of time or location in its lexical entry.

(248)

$$\begin{bmatrix} \text{PHON } \langle \text{ -hi } \rangle \\ \text{SYNSEM}|\text{CONTENT} \begin{bmatrix} \text{RELN Cause} \\ \text{CAUSER} \\ \text{CAUSEE} \\ \text{LOCATION } \boxed{1} \begin{bmatrix} \text{SPATIAL} \\ \text{TEMPORAL} \end{bmatrix} \\ \text{SOA-ARG} \begin{bmatrix} \text{RELN} \\ \text{LOCATION } \boxed{1} \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

Time adverbials would contribute TEMPORAL information to the overall LOCATION. A single time adverbial would be identified as the time for both caused event and causation in a lexical causative, regardless of which verb the adverb had been added to lexically by the Adjunct Addition Lexical Rule, because of the structure-sharing indicated by the numerical tags on LOCATION in its lexical entry. The identification of the time of the event would be an abstract concept, delimited by the time adverbials but not equated to them. Thus, two adverbs which indicated compatible times such as *hwayoil* 'Tuesday' and *o-cen yelhansi-ey* 'at 11 a.m.' could appear together in a lexical causative, just as they could in a simple sentence.

(249) Nay-ka haksayng-eykey **hwayoil-ey o-cen yelhansi-ey** chayk-ul
I-Nom student-Dat Tuesday-Dat noon-before eleven-Dat book-Acc
ilk-hi-ess-ta
read-Caus-Pst-Dec
'I made the student read the book on Tuesday at 11 a.m.'

Note that the acceptability of sentences like (249) means that we would reject any account which had any kind of numerical constraint on time adverbs in lexical causatives to explain the inability of conflicting adverbs to appear together. For example, I. Yang (1976:85) proposes that a lexical causative cannot be derived from the underlying deep structure if two point time adverbs (as opposed to duration adverbs) are present. The important concept is the time of the event, not the number of time adverbs.

The identification of location similarly must rely on an abstract sense of location in order to permit sentences which do not describe actions in the same room, but also do not emphasize the distinctness of location of the causer and causee. This kind of lexical causative sentence is illustrated by Yang's (1976:65) example of "remote" causation given below.

(250) Hitler-nun coy eps-nun manh-un salam-ul cwuk-i-ess-ta
Hitler-Top crime not.exist-Pres be.many-Pres person-Acc die-Caus-Pst-Dec
'Hitler killed many innocent people.'

Another similar example[21] is provided by S. Song (1988:197) in (251), where the locative adverb *hakkyo-eyse* is naturally interpreted as modifying only the caused part

[21] Song's example is also interesting for the use of the lexical causative *sa-mek-i-ess-ta* 'made buy and eat'. Song does not separate the morphemes *sa* 'buy' and *mek* 'eat' in the Korean example,

of the action, but the causer is not given a distinct separate location. These sentences illustrate the necessity for further semantic refinement of the representation of location so that it will more closely fit the Korean facts. In this section, I attempt only to provide a starting direction for such work.

(251) Emeni-ka kyewul-tongan ai-tul-eykey hakkyo-eyse tewu.n cemsim-ul
mother-Nom winter-during child-Plur-Dat school-at warm lunch-Acc
sa-mek-i-ess-ta
buy-eat-Caus-Pst-Dec
'The mother made the children buy and eat hot lunches at school during the winter.'

Two adverbs which cannot compatibly describe the same time, such as *hwayoil-ey* 'on Tuesday' and *kumyoil-ey* 'on Friday', could not occur together in a lexical causative sentence such as (246) any more than they could in a simple sentence. The conflicting times would not be possible for describing a single TEMPORAL feature in one RELATION's LOCATION, and the identification of TEMPORAL features of both the "Cause" RELATION and its SOA-ARG's RELATION means that the availability of nested relations does not translate to any additional TEMPORAL possibilities. Periphrastic causatives, in contrast, do not identify the causation time with the caused event's time, and will permit two conflicting adverbs as long as the two adverbs modify the two distinct TEMPORAL LOCATION's of the two RELATION's, as in (245).[22]

While some accounts have related the limit on conflicting time adverbials in lexical causatives to directness of causation, such as (K. Hong 1991b), most accounts

but he does separate them in the English glosses. Because lexical causatives are not productive, and the lexical causative attaches only to the bare verb stem without permitting any intervening verbal morphology, this apparent compound form shows a possible avenue of productivity. The scope of causation includes both *sa* 'buy' and *eat* 'eat', and both verb stems share the subject and object arguments of *ai-tul-eykey* 'child-Plur-Dat' and *cemsim-ul* 'lunch'. Further research into the extent of the possibility of compounding in lexical causatives would be interesting; I have not seen such forms elsewhere in the literature on lexical causatives.

[22] Logically, the time of the causation has to be earlier or the same as the time of the caused event, but I will not address any linguistic representation of that fact here.

have used the time adverbial property as a measure of syntactic clausality, as do Shibatani (1973a), E. Cho (1987, 1988:190), and K. Hong (1991b:190). However, as we saw in Section 3.4, adverb ambiguity and adverb multiplicity with all adverbs other than time and location adverbs support the semantic biclausality of lexical causatives. By identifying the temporal and spatial location of the causation and caused event in lexical causatives, we can account for the lack of the adverbial ambiguity and multiplicity with this certain class of adverbs, while continuing to account for those properties with other adverbs. The general sense of "directness" of causation motivates the linkage of time and location in these nested semantic relations. Furthermore, identifying the semantic temporal and spatial location roles, while allowing other semantic characteristics to vary, may be a good model of a particular stage in the historical evolution of a simple transitive verb from a complex biclausal structure.

The following subsection briefly discusses another semantic difference between lexical and periphrastic causatives: presupposition of existence.

3.5.4 Presupposition of Existence

Presupposition of existence is the final semantic distinction between lexical and periphrastic causatives which I will mention here in the interests of painting a complete picture of the semantics of Korean causatives and laying out goals for a more complete formal HPSG analysis. Chungmin Lee (1973a:384–5) notes that lexical causatives presuppose the existence of entities they affect, while periphrastic causatives do not. In a lexical causative like (252), Lee argues, the road being narrowed must already exist before it is made narrow, while in a periphrastic causative such as (253), the road may be created as a narrow road, or may already exist before the narrowing action occurs.

(252) Chelswu-ka kil-ul cop-hi-ess-ta
Chelswu-Nom road-Acc narrow-Caus-Pst-Dec
'Chelswu narrowed the road.'

(253) Chelswu-ka kil-ul cop-key hay-ss-ta
Chelswu-Nom road-Acc narrow-Adv do-Pst-Dec
'Chelswu caused the road to be narrow.'

Like the shared time of causation and caused event in lexical causatives, presupposition of existence appears to reinforce the sense of directness of lexical causatives, as compared with periphrastic causatives. The HPSG representation of the property of presupposition of existence is beyond the scope of this thesis.

3.5.5 Agentive and Obviative Lexical Causatives

In this final subsection, I examine an important distinction between two kinds of lexical causatives. Lexical causatives in my account have the same nested semantic CONTENT as the periphrastic causatives, with a CAUSE relation involving the lower verb's relation as a SOA-ARG. However, this semantic representation holds true only for agentive lexical causatives. Obviative lexical causatives have undergone historical change to become indistinguishable from simple transitive verbs. Thus, outside of this subsection, my use of the term "lexical causative" will only include the more interesting, semantically complex agentive lexical causatives, leaving aside the obviative lexical causatives.

S. Song (1967, 1988:208) was the first to distinguish between two kinds of readings which lexical causatives may have: what he called the "ordinary" reading and the "obviative" reading. Song describes an ordinary causative as one where "A causes B to do something" and an obviative causative as one where "A causes something to be done to/on B or, by extension, A does something to/on B". Song's distinction resembles the distinction Alsina and Joshi (1991) draw between semantic variants of causatives, in which the causer acts either on the participant most in control of the caused event or on the the individual most affected by the event. Alsina and Joshi express this variation in terms of which thematic role of the lower predicate is fused with the patient of the causation predicate. Patterson (1974:24) adopts Song's classification, but focusses more on the agentivity distinction. She describes an obviative causative as "one in which the subject NP is the sole agent", and renames Song's "ordinary" causatives as "agentive" causatives, characterized by the possibility of the object NP also being an agent. I will follow Patterson's terminology here.

Patterson (1974:23) classifies lexical causative verbs into three groups. Group I, with verbs like *ip-hi-ta* 'cause to wear' *pes-ki-ta* 'cause to remove (clothing)', *sin-ki-ta* 'cause to wear (on the feet)', *tha-y.wu-ta* 'make ride' and *mek-i-ta* 'cause to eat', consists of verbs which can have either obviative or agentive readings. In Group II, containing verbs such as *ilk-hi-ta* 'cause to read', *ssu-i-ta* 'cause to write', *nel-li-ta* 'cause to spread', *wus-ki-ta* 'make smile', *ca-y.wu-ta* 'make sleep' and *tul-li-ta* 'cause to hold', the agentive reading is the only one possible. Group III, with verbs like *kam-ta* 'cause to wash (hair)', *ssis-ki-ta* 'cause to wash', and *pis-ki-ta* 'cause to comb (hair)', indicates the obviative reading with the accusative marking *-lul* on the causee, and the agentive reading with dative case *-eykey* on the causee. Patterson includes in Group III verbs which can only have an obviative reading, such as *ol-li-ta* 'make go up', *nok-i-ta* 'make melt', and *cwuk-i-ta* 'cause to die', because the causee bears the accusative *-lul* and cannot bear the dative *-eykey*. In summary, there are lexical causatives which have only the agentive reading, lexical causatives which have only the obviative reading, and lexical causatives which may have either agentive or obviative readings. Although Patterson's grouping appears to have a semantic basis and may be completely derived from other semantic properties of the lower verbs, I will not attempt any formal semantic analysis here.

The distinction between agentive and obviative lexical causatives does not appear to be correlated with any strictly syntactic properties, such as case marking restrictions or scrambling possibilities. The differences emerge in semantics only, specifically in adverb modification possibilities and scope. The properties of adverb ambiguity and adverb multiplicity, which rely on biclausal semantics, do not hold true for obviative causatives (Patterson 1974:29). Song (1988:208) writes that Shibatani's (1973a) arguments against these adverbial properties in lexical causatives resulted from Shibatani's concentration on the obviative sense of lexical causatives, without consideration of agentive causatives.

Patterson (1974:30) argues that obviatives represent a single event with one action, which should be represented underlyingly as a simple sentence. As evidence, she presents the example in (254), where the adverb *kecin* 'almost' can take scope only over the entire action. There is no acceptable reading in which *kecin* 'almost' takes scope over only the death, without also taking scope over the attempt at causing the death.

(254)	Kangto-ka	salam-ul	**kecin**	cwuk-i-ess-ta
	thief-Nom	person-Acc	almost	kill-Caus-Pst-Dec
	'The thief almost killed the man.'			

In my HPSG analysis, agentive causatives will have the semantic representation I have given elsewhere for lexical and periphrastic causatives: the caused event is a SOA-ARG within the CAUSE RELATION. (255) illustrates the kind of semantic CONTENT associated with an agentive lexical causative.

(255)

$$\begin{bmatrix} \text{PHON} \ \langle \text{ ilk-hi-ta } \rangle \\ \text{CONTENT} \begin{bmatrix} \text{RELN cause} \\ \text{CAUSER} \\ \text{CAUSEE } \boxed{1} \\ \text{SOA-ARG} \begin{bmatrix} \text{RELN read} \\ \text{READER } \boxed{1} \\ \text{READ} \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

This representation allows biclausal semantics for adverb ambiguity and multiplicity, as well as a sense of separate events.

Obviative lexical causatives, which reflect a monoclausal semantics in not allowing adverb ambiguity or multiplicity, have a flat semantic CONTENT in which the causation is not a separate semantic RELATION from the caused ACTION, as in (256).

(256)

$$\begin{bmatrix} \text{PHON} \ \langle \text{ cwuk-i-ta } \rangle \\ \text{CONTENT} \begin{bmatrix} \text{RELN kill} \\ \text{KILLER} \\ \text{KILLED} \end{bmatrix} \end{bmatrix}$$

In this representation, the causee of an obviative lexical causative is represented as an argument affected by the action, but not as the agent of a lower RELATION.

A distantly similar approach to representing agentive and obviative lexical causatives differently based on their differences in adverb ambiguity is suggested by a footnote in K. Hong (1991b:190–191 fn.3). She writes that the concept of Predication (Williams 1980) is relevant to adverb ambiguity in lexical causatives, and that what manner/duration adverbials pick out is every predication subject. Thus she links adverb ambiguity and multiplicity to a semantic notion of subject. Although the characteristics of predication subjects are not specifically linked in my analysis to being an agentive argument in a RELATION, further work in this area could draw out the parallels and incorporate these insights naturally into HPSG at this point.

Unlike S. Song (1988:208), I do not link the obviative reading to the idea of direct causation. I see the contrasts between direct and indirect causation and between agentivity and obviativity as separate factors. The directness contrast involves the subtle character of the event and assignment of responsibility and effort, as well as entailing physical and temporal closeness. The agentivity/obviativity contrast involves the unity of the action and the agentivity of the lower subject. The qualities related to agentivity seem more binary, while those related to directness seem more gradable.

Another difference between these contrasts lies in the extent of their domain. Directness has been linked to the entire class of lexical causatives, while lexical causatives differ discretely from one another on agentivity and obviativity.

The representations I have given for the directness/indirectness contrast and the agentivity/obviativity contrast are similar in that they both involve a degree of nesting within semantic CONTENT. The agentivity distinction corresponds to nesting in the sense of the existence of a SOA-ARG and an agentive role for the lower subject within that SOA-ARG. Directness is represented by structure sharing of the LOCATION within the higher and lower RELATION's, encompassing both TEMPORAL and SPATIAL features. Thus directness of causation can be seen as a narrow limitation on the semantic nesting, while obviativity is the absence of any semantic nesting.

3.5.6 Conclusion: Semantic Representation

Although semantic differences between lexical and periphrastic causatives are less critical to a syntactic analysis in current theory than they were in the 1970's, a complete analysis will represent certain semantic facts. Lexical causatives tend to involve a more direct sense of causation than periphrastic causatives, which I represent in terms of a shared LOCATION feature of both the causation and the caused event, involving both TEMPORAL and SPATIAL location. This structure sharing explains the impossibility of conflicting time adverbials in lexical causatives, unlike in periphrastic causatives. Certain other semantic differences exist, such as the fact that lexical, but not periphrastic, causatives presuppose the existence of entities they affect. Finally, distinguishing semantically complex agentive lexical causatives from semantically simple obviative lexical causatives clarifies the data on lexical causatives, allowing us to examine interesting properties where lexical causatives resemble periphrastic causatives, without obscuring the lack of these properties in obviative lexical causatives.

3.6 Negation

The early literature on Korean causatives examined negation facts as an instance where lexical and periphrastic causatives differed in possible meanings. Within current theory, this difference in negation facts sheds light on the relation of meaning to constituent structure. While adverbial modification facts relied on an indirect reference to constituent structure, as mediated by subcategorization, negative scope requires a more direct connection between constituent structure and semantic CONTENT.

In this section, I lay out the facts showing the contrast between the lexical and periphrastic causatives, and show how this contrast can be accounted for neatly within my analysis.

3.6.1 Negation in Causatives

Negation in Korean can be expressed by a negative marker (*an* 'not' or *mos* 'cannot') before the verb, as in (257a), or by adding the suffix *-ci* to the verb and using either the negative auxiliary *anh-ta*[23] for the plain negation reading or the sequence *mos ha-ta* for the "cannot" reading, as in (257b).

(257) a. Nay-ka kimchi-lul **mos** mek-nun-ta
I-Nom kimchi-Acc cannot eat-Pres-Dec
'I cannot eat kimchi.'

b. Nay-ka kimchi-lul mek-*ci* **mos** *ha*-n-ta
I-Nom kimchi-Acc eat-Cmp cannot do-Pres-Dec
'I cannot eat kimchi.'

The appearance of the negative auxiliary *ha-ta* can be distinguished from the causative *ha-ta* by the negative *-ci* marking on the main verb being negated, as opposed to the *-key* marking on a verb whose action is being caused.

Both forms of negation are found in lexical and periphrastic causative sentences. In arguing for distinct underlying sources for the lexical and periphrastic causatives, Patterson (1974:18) observes that the periphrastic causative allows negation of the causation or of the lower verb, but the lexical causative allows negation only of the causation. S. Song (1988:214) completes the picture of negation possibilities by including all four possible placements of the negation marker for the periphrastic causative, contrasted with the more limited two placements for the lexical causative.

[23] *Anh-ta* is historically derived from *ani* 'not', which survives in Modern Korean as *an*, and *ha-ta* (Park Kim 1967:37–38).

I will review Song's examples below, along with trees for the verbal complex structures corresponding to each example.

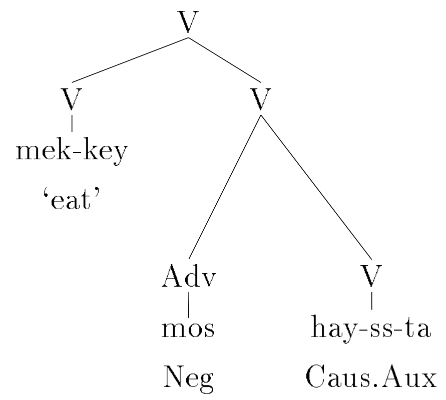
The causation in a periphrastic causative can be negated with either the negative particle alone, as in (258a), or with the negative auxiliary, as in (258b).

(258) a. Ku-ka na-eykey kimchi-lul mek-key **mos** hay-ss-ta
he-Nom I-Dat kimchi-Acc eat-Adv cannot do-Pst-Dec
'He could not cause me to eat kimchi.'

b. Ku-ka na-eykey kimchi-lul mek-key ha-**ci** **mos** hay-ss-ta
he-Nom I-Dat kimchi-Acc eat-Adv do-Cmp cannot do-Pst-Dec
'He could not cause me to eat kimchi.'

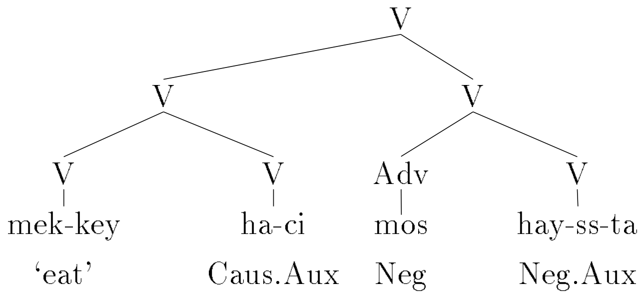
In (258a), the negative particle *mos* combines with the causative auxiliary *hay-ss-ta* to form a constituent. This constituent, headed by the causative auxiliary, combines with the lower verb *mek-key* to form a causative verbal complex. These constituencies are illustrated in the tree in (259).

(259)



In (258b), *mos* combines with the negative auxiliary *hay-ss-ta* to function as a single negative auxiliary constituent. This constituent combines with the causative verbal complex formed by the lower verb *mek-key* and the causative auxiliary *hay-ss-ta*, as illustrated in (260).

(260)



Thus, negation of the causation in a periphrastic causative can come about through negation sister to the lexical sign for the causative auxiliary, as in (258a), or through negation sister to the causative verbal complex of both verbs, as in (258b).

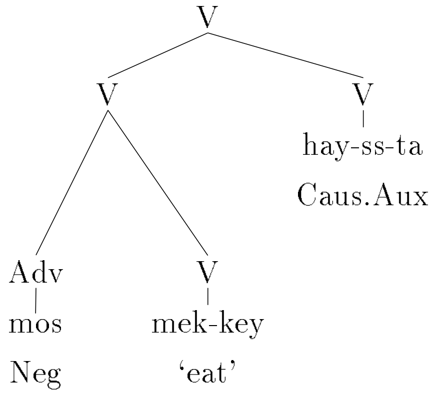
Negation of the lower verb in a periphrastic causative has to involve negation sister to the lower verb and not to the causative verbal complex, whether the negation takes the form of a particle, as in (261a), or of a negative auxiliary, as in (261b).

(261) a. Ku-ka na-eykey kimchi-lul **mos** mek-key hay-ss-ta
he-Nom I-Dat kimchi-Acc cannot eat-Adv do-Pst-Dec
'He did something so that I could not (or cannot) eat kimchi.'

b. Ku-ka na-eykey kimchi-lul mek-**ci** **mos** ha-key hay-ss-ta
he-Nom I-Dat kimchi-Acc eat-Adv cannot NegAux-Adv do-Pst-Dec
'He did something so that I could not (or cannot) eat kimchi.'

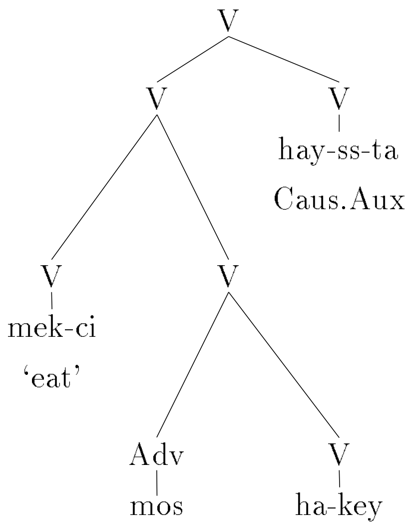
In (261a), the negative particle *mos* forms a constituent with the lower verb *mek-key*, with this negative constituent sister to the causative auxiliary. The tree in (262) illustrates these structural relationships.

(262)



In (261b), the negative constituent formed by *mos* and the negative auxiliary takes the lower verb *mek-ci* as a complement in a verbal complex which in turn is the complement of the causative auxiliary *hay-ss-ta*. This constituent structure appears in (263).

(263)



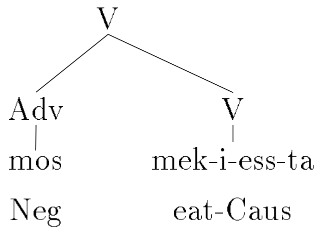
Lexical causatives do not provide the same structural opportunities for negation, because both the negative particle and the negative auxiliary combine syntactically only with complete lexical items. This limitation provides no obstacle to negation of the causation, with grammatical examples given in (264).

(264) a. Ku-ka na-eykey kimchi-lul **mos** mek-i-ess-ta
he-Nom I-Dat kimchi-Acc cannot eat-Caus-Pst-Dec
'He could not cause me to eat kimchi.'

b. Ku-ka na-eykey kimchi-lul mek-i-**ci** **mos** hay-ss-ta
he-Nom I-Dat kimchi-Acc eat-Caus-Cmp cannot do-Pst-Dec
'He could not cause me to eat kimchi.'

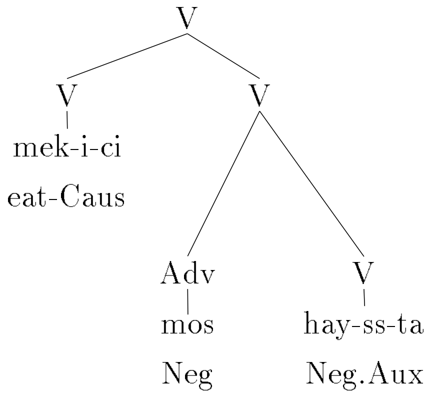
In (264a), the negative particle combines with the complete lexical causative verb, as seen in (265).

(265)



(264b) involves the negative particle combining with the negative auxiliary, to form a negative constituent which takes the complete lexical causative verb as a complement. These structural relationships are shown in (266).

(266)



The structural limitation that both the negative particle and the negative auxiliary combine only with complete lexical items leads to the impossibility of negating the lower verb in a lexical causative. (267a) shows that it is ungrammatical to construe a negative particle preceding the lexical causative as being attached only to the lower verb stem in the lexical causative. In (267b), we see that there is no way for the negative auxiliary to take the lower verb stem as its complement and to bear the lexical causative morpheme itself. These two examples show that the only possible ways for negation to participate in a structural relationship with the lower verb do not result in grammatical sentences.

(267) a. * Ku-ka na-eykey kimchi-lul [**mos**-mek]-i-ess-ta
he-Nom I-Dat kimchi-Acc cannot-eat-Caus-Pst-Dec
'He did something so that I could not (or cannot) eat kimchi.'

b. *Ku-ka na-eykey kimchi-lul [mek-**ci** **mos** ha]-i-ess-ta
he-Nom I-Dat kimchi-Acc eat-Cmp cannot do-Caus-Pst-Dec
'He did something so that I could not (or cannot) eat kimchi.'

Thus, I conclude along with Patterson (1974) and Song (1988) that there is an asymmetry between lexical and periphrastic causatives in possible negative scopes. For me, this asymmetry follows directly from the difference in constituent structure possibilities between a syntactically formed causative and a lexically formed causative.

3.6.2 Negation Analysis

In this section, I present a specific HPSG analysis of how the negative particles and negative auxiliaries select for the constituents they combine with and what determines the scope of negation. I show how this analysis covers simple sentences and periphrastic and lexical causatives, and indicate how my analysis could be extended to include certain restrictions on negative particles within verbal complexes.

3.6.2.1 Negative Particles Contrast with Adverbs

The negative particles lack the characteristics of heads, such as bearing tense and other inflectional morphology and occurring finally within a phrase. Instead they resemble adverbs in contributing semantic information to a verb, and in not imposing syntactic specifications on the verb they combine with. Furthermore, the more semantically prototypical adverb *cal* 'well' resembles the negative particles in occurring only directly before verbs, and not phrase-finally or interspersed freely among verbal arguments (Sells and Cho 1991, Sells 1994).[24] Analyzing these particles as

[24]J.-B. Kim (1995), in an HPSG analysis of Korean negation, argues that *an* and *mos* are best analyzed as prefixes, rather than separate particles, and notes several papers arguing for and against the prefix status of these negators. Kim argues for their prefixhood with evidence of lexical idiosyncrasies of negation and diagnostics of wordhood such as mandatory instead of optional inclusion in a verb reduplication process, and the ability to host suffixes such as the spurious plural marker *-tul* or delimiters such as *man*. He also describes a phonological restriction for most Korean speakers that *an* and *mos* can negate only verb stems of no more than two syllables.

Since the lexical idiosyncrasies involve inherently negative verbs such as *molu-ta* 'not know' and their positive counterparts such as *al-ta* 'know', these strike me not as unpredictable, irregular adverbs appears to produce a complete analysis, with the MOD value of the negative particle being the key element which adds the negation information to the semantic CONTENT of the verb.

A central characteristic of my analysis of adverbs in conjunction with my analysis of causatives is the inheritance of adverbs modifying the lower verb to the COMPS list of the higher verb. In addition to the readings where the negative particle takes scope over the verb or verbal complex sister to it, as in the trees and corresponding examples given in Section 3.6.1, we would now expect additional readings where the negative particle would take scope over the lower verbs embedded within the verbal complex. Thus, in a highly schematized tree such as (268), we would expect not only the reading where the negative particle had scope over its sister, which is the constituent "C", headed by Verb-4, but also readings in which "Neg" has scope over

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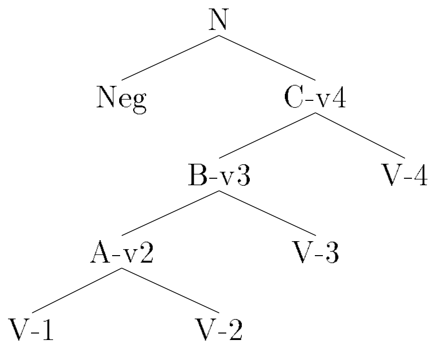
exceptions to what *an* and *mos* can negate, but rather consequences of the existence of inherently negative verbs, in conjunction with lexical blocking of the syntactic negation in these cases, as in Poser (1992). Kim argues that lexical blocking is implausible in Korean negation, because of the possibility of the negative auxiliaries occurring with these verbs, but I attribute this difference between the negative particles and negative auxiliaries to slightly different semantics. Drawing on Poser's restriction of lexical blocking to zero-level projections only, Sells (1996a, 1996b) argues for Poser-style blocking with the negative particles but not negative auxiliaries based on a syntactic difference in the phrases that would be created, an X^0 complex with the negative particle, but a V' complex with the negative auxiliary. Thus, the impossible combination of negative particles with the positive counterparts of inherently negative verbs need not be attributed to lexical idiosyncrasies, as opposed to blocking.

Sells (1994) cites Martin (1992) as giving an example of *mos* bearing the *-tul* plural marker, so negative markers may indeed have some ability for some speakers to host suffixes. I suspect that the inability of *an* and *mos* to host suffixes for other speakers may be related to their lack of semantic or phonological weight. For example, the delimiter *-man* and topic marker *-nun* cannot attach to verbs of less than two syllables (Y. Cho 1991, Y. Cho and Sells 1995). The phonological restriction on verbs that can be negated with *an* and *mos* must be balanced against the phonological fact (Y. Cho 1991, Sells 1994) that the prefix *an* does not contribute to the phonological weight of a word, as seen by its inability to license *-man* or *-nun* attachment to negated monosyllabic verb stems.

Although I analyze the negators as separate particles, not prefixes, my overall analysis of causatives would be compatible with a prefix analysis of negators, if it included an account of the instances where *an* and *mos* take scope over entire verbal complexes. Kim suggests that Cooper storage for the negation operator or some mechanism specific to argument composition may possibly cover these cases. A further requirement of a prefix negator analysis, to be compatible with my causative analysis, is that it account for the impossibility of negating the caused verb stem in lexical causatives. One possible analysis of this fact and the lack of contribution to phonological weight might be that the negation prefix is added at a later level, as in Lexical Phonology (Kiparsky 1982, Mohanan 1986), than the lexical causative suffix and the *-man* and *-nun* suffixes, similar to the suggestion of Kim (p.c.) cited by Sells (1994:357).

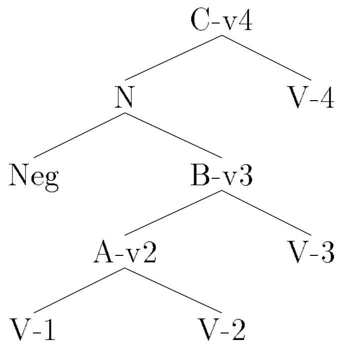
the constituents “B”, headed by Verb-3, and “A”, headed by Verb-2.

(268)

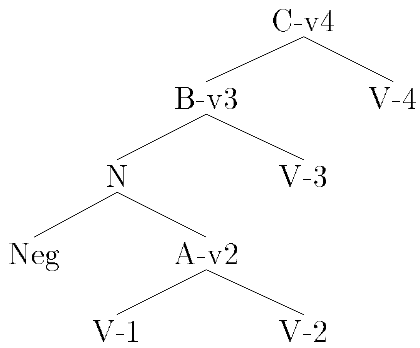


Given that we had the structure in (268), this predicted set of negative scopes would be a strong, verifiable hypothesis. However, the string of words corresponding to the structure in (268) could also correspond to the structures given in (269) and (270).

(269)



(270)



In any case where the inheritance of a negative adverb from a lower verb to a higher one in a verbal complex could produce an additional reading for a structure where the negative particle attaches to the higher verb, there will also be another structure corresponding to the same string of words in which the negative particle attaches directly to the lower constituent it has scope over in the additional reading associated with the higher attachment.

This would imply that analyzing negative particles like adverbs, including allowing them to be inherited on COMPS lists, would produce multiple structures for certain readings, but not wrongly predict any new sentences to be grammatical. However, fully evaluating this proposed analysis shows us the value in including lexical causatives as well as periphrastic causatives in this exploration of Korean grammar. The entire lexical causative verb did inherit other adverbs modifying lower verb stems, as seen in Section 3.4.1.2, for example, but lexical causative verbs do not inherit negative particles from lower verbs, as seen in the impossibility of scope over only the lower verb stem in (271).

(271) Ku-ka na-eykey kimchi-lul **mos** mek-i-ess-ta
he-Nom I-Dat kimchi-Acc cannot eat-Caus-Pst-Dec
'He could not cause me to eat kimchi.'
*'He did something so that I could not (or cannot) eat kimchi.'

Thus it is imperative that we do not analyze the scope of negative particles in exactly the same way as the modification targets of other adverbs. Negative scope is not inherited, and negative particles should not be represented as subcategorized items on COMPS lists.

3.6.2.2 Negative Particles and Head-Adjunct Schema

If we cannot analyze negative particles either as complement-taking heads or as adverbs added to COMPS lists by lexical rule, a clear option remaining is to analyze these particles in the standard way adverbs have been analyzed in HPSG (Pollard and Sag 1994:55–57): as adjuncts introduced by a syntactic schema. Their Head-Adjunct Schema is given below.

(272) **Head-Adjunct Schema**:

(P & S Schema 5) a phrase with DTRS value of sort *head-adjunct-structure* (*head-adj-struc*), such that the MOD value of the adjunct daughter is token-identical to the SYNSEM value of the head daughter.

Adopting this Schema provides for the appearance of the negative particles without requiring them to be listed on the COMPS list of the verb they negate. The Head-Adjunct Schema functions in conjunction with the Semantics Principle, which ensures that the adjunct daughter's CONTENT is the CONTENT of the mother node. Pollard and Sag's (1994:56) version of this principle, before their revision incorporating effects of quantifier retrieval, is given below.

(273) **Semantics Principle**

In a headed phrase, the CONTENT value is token-identical to that of the adjunct daughter if the DTRS value is of sort *head-adj-struc*, and with that of the head daughter otherwise.

Analyzing certain adjuncts as appearing on the COMPS list, while other adjuncts are introduced by the Head-Adjunct Schema raises several questions beyond the scope of this thesis. First, are adjectives and prepositional phrases which modify nouns analyzed as belonging to the COMPS list of the noun, or as being introduced by the Head-Adjunct Schema? In order to motivate the two distinct adjunct analyses, we should find a clear overall pattern as to which adjuncts are analyzed which way. One factor distinguishing the analyses at this point is that the Head-Adjunct Schema is binary-branching, introducing only one daughter per head. This is entirely appropriate for the negative particles which I analyze as relying on this schema. Perhaps adjuncts of nouns have properties, such as differing scopes of adjectives, which are best represented by a binary-branching structure, and thus by the Head-Adjunct Schema.

Another question requiring research outside this thesis is whether adjuncts cross-linguistically reflect the same distinction between those analyzed best as belonging to the COMPS list and those analyzed best as introduced by schema. It may be that languages differ as to whether both analyses are required, or on the kinds of adjuncts analyzed each way. Finding universal properties corresponding to these two analyses is an important goal. For example, it may be the case that languages such as Korean where NP's frequently are null are more likely to have adverbs as items on the COMPS list, because the boundary between obligatory and optional arguments has been functionally diminished.

A third question is whether it is useful to restrict the head daughter in the Head-Adjunct Schema to be [LEX +], in addition to the restriction to binary-branching. This would eliminate the possibility of dual analyses of either COMPS list membership or Schema-based adjunction for adverbs which are separated from the verb by any item on the COMPS list. I will not propose a way to eliminate all possibility of dual analyses for adverbs in this thesis, in the interests of first exploring the questions raised here and finding a motivated restriction on the application of each analysis at the correct point beyond the data given here.

In applying this general analysis of adjuncts introduced by the Head-Adjunct Schema to the negative particles of Korean, the important aspects are the MOD value we assign to the particles, as well as their CONTENT. A lexical entry for the negative particle *an* is given below in (274).

This lexical entry includes the first use in this thesis of the backslash ("\") convention; the backlash occurs between information which is unified and an exceptional feature within that unified information which is not unified. Thus, in this entry, the entire CONTENT of the negated verb is unified with the CONTENT of the adverbial negative particle, except for the polarity, which differs between the two CONTENT's.

(274)

$$\left[\begin{array}{l} \text{PHON } \langle \text{ an } \rangle \\ \text{CAT} \left[\begin{array}{l} \text{HEAD}|\text{MOD} \left[\begin{array}{l} \text{CAT} \left[\begin{array}{l} \textit{verb} \\ \text{LEX } + \end{array}\right] \\ \text{CONTENT} \boxed{1} \backslash [\text{POLARITY } 1] \end{array}\right] \end{array}\right] \\ \text{CONTENT } \boxed{1} \backslash [\text{POLARITY } 0] \end{array}\right]$$

The MOD value of *an* in (274) selects for a [LEX +] verb[25] with a [POLARITY 1], i.e. "true", value. The CONTENT of *an* has the same information as the CONTENT of the verb it combines with, except that *an* specifies a [POLARITY 0], i.e. "false", value.

I have chosen this representation of negation by the particles *an* and *mos* to indicate the limited combination possibilities of the particles. Restricting the particles to appear with verbs of [POLARITY 1] means that they cannot negate a complex of another negative particle and a verb, as seen in (275).

(275) a. *Na-nun kimchi-lul **an** **mos** mek-ess-ta
I-Top kimchi-Acc Neg Neg-cannot eat-Pst-Dec
'I wasn't not able to eat kimchi.'

b. *Na-nun hakkyo-ey **an** **an** ka-ss-ta
I-Top school-Dir Neg Neg go-Pst-Dec
'I didn't not go to school.'

If we interpret the negative auxiliaries as having a [POLARITY 0] value, the restriction of the negative particles to combine only with [POLARITY 1] verbs would rule out sentences like (276a), where *mos* combines directly with a negative auxiliary, and (276b), where *mos* combines with a verbal complex headed by the negative auxiliary *anh-ta*.

[25]Note that we need to specify [LEX +] in the MOD values of negative particles, and the LEX feature belongs to CAT, but not to HEAD or CONTENT, the two features we retained for MOD values unified through the Adjunct Addition Lexical Rule. LEX cannot be a HEAD feature, because phrases will be [LEX −], while the heads of those phrases will be [LEX +]. Because we are using the Head-Adjunct Schema from Pollard and Sag (1994) which defined MOD features as taking SYNSEM's as values, the LEX feature falls within our analysis of MOD values for syntactically combined modifiers such as negative particles. However, this raises the question of whether our previous paring down of the MOD feature in the Adjunct Addition Lexical Rule for reasons of computational simplicity, rather than empirical predictions, was desirable. We do not encounter the same computational simplicity motivation for syntactically unified MOD values, such as for the negative particles, because the adjunct is not added to the COMPS list in this case, and thus does not create a more complex structure for further adjuncts. The tradeoff for our overall analysis is between two distinct types of MOD value for the distinct lexical and syntactic selection of modified heads, without creating extremely complex HPSG signs, and a complex, arbitrarily deeply embedded COMPS list for elements with more than one modifier, but a single type of MOD value for the entire Korean grammar. Either alternative would fit with the rest of my analysis.

(276) a. *Na-nun kimchi-lul mek-ci mos anh-ass-ta
I-Top kimchi-Acc eat-Cmp Neg-cannot NegAux-Pst-Dec
'I was not able to not eat kimchi.'

b. *Na-nun kimchi-lul mos [mek-ci anh-ass-ta]
I-Top kimchi-Acc Neg-cannot eat-Cmp NegAux-Pst-Dec
'I was not able to not eat kimchi.'

The same string of words as (276b) would be grammatical with a structure where *mos* attaches to the lower verb, and this negated verb complex is the complement of *anh-ass-ta*, as seen in (277) below. Correspondingly, the meaning of (277) differs from the meaning of (276).

(277) Na-nun kimchi-lul [mos mek-ci] anh-ass-ta
I-Top kimchi-Acc Neg-cannot eat-Cmp NegAux-Pst-Dec
'I was not unable to eat kimchi.'

The fact that negative auxiliaries, such as *anh-ta*, can negate items which are already negated, as in (277), while negative particles, such as *an*, can only negate positive verbs, is the basis for assigning them different semantic representations.

The "cannot" sense of *mos* is captured as a background context on the fact that the verb's action does not happen. This is seen in the lexical entry for *mos* given below.

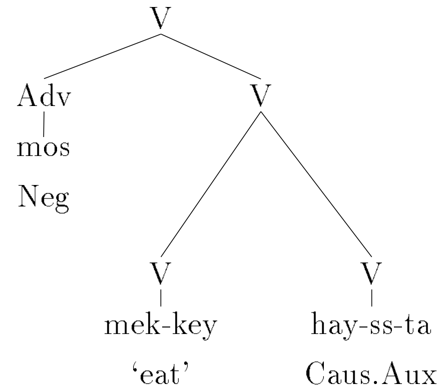
(278)
$$\begin{bmatrix} \text{PHON } \langle \text{ mos } \rangle \\ \text{CAT} \begin{bmatrix} \text{HEAD}|\text{MOD} \begin{bmatrix} \text{CAT} \begin{bmatrix} \textit{verb} \\ \text{LEX } + \end{bmatrix} \\ \text{CONTENT}\boxed{1}\backslash[\text{POLARITY } 1] \end{bmatrix} \end{bmatrix} \\ \text{CONTENT } \boxed{1}\backslash[\text{POLARITY } 0] \\ \text{CONTEXT}|\text{BACKGROUND} \begin{bmatrix} \text{RELN cannot} \\ \text{SOA-ARG } \boxed{1} \end{bmatrix} \end{bmatrix}$$

At this point, I will discuss how my analysis naturally includes the examples discussed in Chapter 2 where negative particles take wide scope over an entire verbal complex, instead of narrow scope over the single following verb (Sells and Cho 1991, Sells 1994). For example, the same string of words as in (261a) can also have the reading of negated causation instead of a negated lower verb, as seen in (279).

(279) Ku-ka na-eykey kimchi-lul **mos** [mek-key hay-ss-ta]
he-Nom I-Dat kimchi-Acc cannot eat-Adv do-Pst-Dec
'He could not cause me to eat kimchi.'

This negative scope corresponds to the structural attachment of the negative particle to the complete verbal complex, as seen in (280), instead of attachment to the lower verb.

(280)



My analysis extends to cover this case because the crucial properties of the negative particle's MOD value and of the Head-Adjunct Schema are the same for the verbal complex as they would be for a single, lower verb. (279) includes the same binary-branching structure between *mos* and the verbal complex as between *mos* and a single verb, the verbal complex has the same category of verb and the same LEX value of + as a single verb, and the polarity of the causative verb can be changed to 0 just as the polarity of the lower verb could be changed to 0. Thus the two possible structures and scopes of (279) and (261a) follow naturally from my analysis.

3.6.2.3 Negative Particles and Verbal Complexes

Our focus on the causative verbal complex has shown us the full range of placement possibilities for the negative particles *an* and *mos*, but the causative auxiliary is actually exceptional in appearing with negative particles within the verbal complex, as seen in (281).

(281) ilk-key **an** ha-ta
read-Adv Neg do-Dec
'not cause to read'

The other auxiliary verbs forming verbal complexes cannot be negated in this way (Sells 1991, 1994), as seen in Sells' examples in (282).

(282) a. *ilk-e **an** po-ta
read-Cmp Neg try-Dec
'not try to read'

b. * ilk-e **an** cwu-ta
read-Cmp Neg give-Dec
'not give the favor of reading'

c. * ilk-eya **an** ha-ta
read-Cmp Neg must-Dec
'must not read'

For these verbal complexes, the possibility of the negative particle preceding the complex and having scope over the entire complex, as discussed in the previous section, provides the only way for a negative particle to negate the auxiliary verb, as in (283) below.

(283) **an** ilk-e po-ta
Neg read-Cmp try-Dec
'not try to read'

Sells (1991) attributes the inability of the various non-causative auxiliary verbs to occur with *an* or *mos* to their deficiencies in either argument structure or event structure. Sells (1994) elaborates on this idea by suggesting that only the causative, among verbal complexes, has two clearly distinct predicates; thus, these two predicates are distinct enough to be split.

Describing a semantic deficiency in the auxiliary verbs, but not in the entire verbal complex, is not compatible with the most natural HPSG analysis of the verbal complexes, because the main source of ungrammaticality in HPSG is failure to unify. Because the auxiliary verb is the head of the verbal complex, its head features will be inherited by the mother node of the verbal complex, where *an* and *mos* can attach without conflict. If the type of the auxiliary's CONTENT or features within that CONTENT were not compatible with the CONTENT specification within the negative particle's MOD feature, the same conflicting information would be inherited to the mother node. Furthermore, because the auxiliary's lexical entry includes specifications for how it will incorporate the semantic information from its complement, those specifications will be indistinguishable in the HPSG signs of the sentence from the actual semantic information in the complement. The structure sharing indicated in HPSG signs by numerical tags involves identity of information. Thus, the standard mechanisms of HPSG do not allow us to say that the auxiliary verb in a verbal complex has less semantic information than the verbal complex headed by that auxiliary verb.

Although the semantic specifications of the auxiliary will be the same as those of the entire verbal complex, the syntactic specifications will differ, allowing us to describe this class of verbs which cannot be immediately preceded by the negative particles. Auxiliaries forming verbal complexes are distinct from the entire verbal complex in the fact that they have on their COMPS list a lexical V complement. The causative auxiliary is distinct from the auxiliaries which cannot be preceded by the negative particles in the fact that it contributes its own subject, and does not have the same subject as the V complement. In a sense, we are describing the deficiency Sells locates in argument structure or event structure in terms of the requirement of these verbs to inherit a subject from a lexical V complement, which, given the lexical entries for auxiliaries we have posited thus far, may also be taken to indicate contingently that the verb will inherit its COMPS as well. A verb needing to inherit all of its arguments is deficient, and not able to be negated by the negative particles.

Thus, we can describe the class of auxiliaries which the negative particles cannot directly negate, without including the verbal complexes headed by these auxiliaries.

We add a constraint that the negative particles *an* and *mos* cannot apply to any verb fitting the description in (284).[26]

(284)

$$\begin{bmatrix} \text{SUBJ } \boxed{2} \\ \text{COMPS } \mathrm{L} \oplus \left\langle \begin{bmatrix} \textit{verb} \\ \text{LEX } + \\ \text{SUBJ } \boxed{2} \end{bmatrix} \right\rangle \end{bmatrix}$$

Using syntactic information, rather than a notion of semantic deficiency, to prevent the negative particles *an* and *mos* from occurring inside verbal complexes fits well with another class of lexical complexes. The light verb *ha-ta* combines with verbal nouns to form a lexical complex, and negative particles can occur before this light verb, as seen in the example below with the verbal noun *kongpwu* 'study'.

(285) Na-nun hankwuk-mal-ul kongpwu **an** hay-ss-ta
I-Top Korean-language-Acc study Neg do-Pst-Dec
'I did not study Korean.'

If a notion of semantic deficiency governed which verbs the negative particles could occur before, it would mean that the light verb *ha-ta* which combines with verbal nouns would have to be regarded as semantically rich enough for the negative particles, while the auxiliary verbs in verbal complexes such as *po-ta* 'try' or *cwu-ta* 'give the favor of' would have to be seen as too semantically deficient. This semantic comparison appears difficult to defend.[27]

[26]In order to fully specify in one place the description of the verbs the negative particles are able to negate, we need to combine this constraint on verbs they cannot negate with the description of the verbs they are able to negate, given within the MOD values in (274) and (278). If we were to divide the various classes of main verbs and auxiliaries described in this section into sorts, with a single supersort dominating the sorts of main verbs and of auxiliaries like the causative which form a verbal complex but contribute a distinct subject from that of their verbal complement, then this supersort specification for the negated verb could be added into the MOD value specification for the negative particles.

[27]Sells (1991, 1994) does not take this position on the comparison of semantic richness of the auxiliaries. Sells (1991) states that the negative particle can appear before the light verb *ha-ta* because it cannot appear before the noun *kongpwu*, and a similar statement appears in Sells (1994).

Having completed our overview of the properties and restrictions of the negative particles in causatives and other verbal complexes, I now move on to the analysis of the negative auxiliaries.

3.6.2.4 Negative Auxiliaries

By subcategorizing for a verbal complement, the negative auxiliaries *anh-ta* and *mos hata* specify within their lexical entries the form of this verbal complement, the inheritance of the arguments of this complement to become arguments of the verbal complex headed by the negative auxiliary, and the scope of negation over the relation of the verbal complement.

In (286), I present the lexical entry for the negative auxiliary *anh-ta*, which has a single complete lexical form. The entry for the syntactically combined *mos hata* 'cannot' is slightly more complex, and I will discuss it below.

(286)

$$\begin{bmatrix} \text{PHON} & \langle \text{ anh-ta } \rangle \\ \text{CAT} & \begin{bmatrix} \text{SUBJ} & \langle \boxed{1} \rangle \\ \text{COMPS} & \left\langle \begin{bmatrix} \text{CAT} & \begin{bmatrix} \text{VFORM} & \text{-ci} \\ \text{LEX} & + \\ \text{SUBJ} & \langle \boxed{1} \rangle \\ \text{COMPS} & \text{L} \end{bmatrix} \\ \text{CONTENT} & \boxed{2} \end{bmatrix} \right\rangle \oplus \text{L} \end{bmatrix} \\ \text{CONTENT} & \begin{bmatrix} \text{RELN} & \text{NEG} \\ \text{SOA-ARG} & \boxed{2} \end{bmatrix} \end{bmatrix}$$

In (286), *anh-ta* specifies that its verbal complement is in the *-ci* form, and has not combined with any of its complements, i.e. is [LEX +]. *anh-ta* also specifies that

However, because the negative auxiliary can negate the complex of the verbal noun and *ha-ta*, giving *kongpwu ha-ci anh-ta*, giving the intended meaning of the ungrammatical construction, I do not feel there is an overriding functional need for the negative particle to appear before a semantically deficient verb. Instead, I believe the positioning of the negative particle before a light verb must be grammatical in its own right, without comparison to the impossible structure of the negative particle preceding the noun.

its subject is the same as its verbal complement's subject, and that its complements include all the complements of its verbal complement, as described by the variable "L".

The scope of negation is seen in the NEGATION relation in *anh-ta*'s CONTENT; the content of the verbal complement becomes the SOA-ARG of the NEGATION relation. In some cases, the NEGATION relation will be semantically equivalent to changing the POLARITY specification of the complement verb's semantic RELATION from [POLARITY 1], or true, to [POLARITY 0], or false. However, we would not want to encode this particular case into the lexical entry of *anh-ta* because *anh-ta* can apply to negated verbs, as seen in (287), (Park Kim 1967:115).

(287) Na-nun ecey hakkyo-ey **an** ka-ci **anh**-ass-ta
I-Top yesterday school-Dir Neg go-Cmp NegAux-Pst-Dec
'It is not the case that I did not go to school yesterday.'

In those cases, we would not want to block *anh-ta* from subcategorizing for verbs with [POLARITY 0] semantic relations as well as verbs with verbs with [POLARITY 1] semantic relations. Furthermore, we would not want to have a [POLARITY 0] complement "negated" by having its POLARITY specified as "0", because this situation would result in the negative auxiliary being analyzed, contrary to fact, as adding nothing to the meaning of the sentence.

Furthermore, we would not want to adopt a mechanical solution, such as having the POLARITY of the subcategorized verb called α, while the negative auxiliary adopted the verb's CONTENT, but changed its POLARITY to $|1 - \alpha|$. This kind of solution is likely to obscure the real, underlying semantic properties of the auxiliary, since a doubly negated sentence may have an overall positive meaning, but the double negation is likely to give some semantic coloring to the sentence. Also, sentences with more than two negatives in them should be represented as semantically more complex, and thus harder to interpret, than sentences which mathematically represent the same positive or negative overall value with fewer linguistic negations.

My analysis gives the two forms of negation in Korean different semantic representations, corresponding to their differing behavior. The negative auxiliaries have a

NEGATION relation, while the negative particles contribute a [POLARITY 0] value. Further semantic research could illuminate the exact meaning and implications of the NEGATION relation.[28]

The HPSG sign for the negative auxiliary *mos hata* 'cannot' would resemble the sign for *anh-ta* as given in (286). However, this sign would come about from the syntactic combination of the negative particle *mos* with the negative auxiliary *hata*. This negative auxiliary would subcategorize for the particle *mos* in addition to the items *anh-ta* subcategorizes for: the verbal complement as well as its complements. The lexical sign for the negative auxiliary *hata* is given below in (288).

(288)
$$
\left[\begin{array}{ll}
\text{PHON} & \langle \text{ hata } \rangle \\
\text{CAT} & \left[\begin{array}{ll}
\text{SUBJ} & \langle \boxed{1} \rangle \\
\text{COMPS} & \left\langle \left[\begin{array}{ll}
\text{CAT}|\text{HEAD}|\text{MOD} & \left[\begin{array}{ll}
\text{CAT} & \left[\begin{array}{l} \textit{verb} \\ \text{LEX} + \end{array}\right] \\
\text{CONTENT} & \boxed{3} \backslash\ [\text{POLARITY } 1]
\end{array}\right] \\
\text{CONTENT} & \boxed{3} \backslash\ [\text{POLARITY } 0] \\
\text{CONTEXT}|\text{BACKGROUND} & \left[\begin{array}{ll} \text{RELN} & \text{cannot} \\ \text{SOA-ARG} & \boxed{3} \end{array}\right]
\end{array}\right], \left[\begin{array}{ll}
\text{CAT} & \left[\begin{array}{ll} \text{VFORM} & \text{-ci} \\ \text{SUBJ} & \langle \boxed{1} \rangle \\ \text{COMPS} & L \end{array}\right] \\
\text{CONTENT} & \boxed{2}
\end{array}\right] \right\rangle \oplus L
\end{array}\right] \\
\text{CONTENT } \boxed{3} & \left[\begin{array}{ll} \text{RELN} & \text{NEG} \\ \text{SOA-ARG} & \boxed{2} \end{array}\right] \\
\text{CONTEXT}|\text{BACKGROUND} & \left[\begin{array}{ll} \text{RELN} & \text{cannot} \\ \text{SOA-ARG} & \boxed{2} \end{array}\right]
\end{array}\right]
$$

I analyze the negative auxiliary *hata* as subcategorizing for *mos* specifically by identifying its distinctive CAT, CONTENT, and CONTEXT values. Note that the

[28] See Cooper (1984) for discussion of sentence negation in situation semantics.

combination of *mos* with *hata* will result in *mos* specifying that the lexical sign of *hata* must unify with a [POLARITY 1] specification, and that the combined sign for *mos hata* must have a [POLARITY 0] value. This means that the [POLARITY 0] specifications of *anh-ta* and *mos hata* cannot be due to the inherent nature of the NEGATION relation, if we are to analyze the *mos* in *mos hata* similarly to other appearances of the particle *mos*, where it does not combine with negative verbs.

Although we can relate the [POLARITY 0] specification contributed by *mos* to the [POLARITY 0] specification of the entire negative auxiliary *mos ha-ta*, paradoxically we cannot easily relate the "cannot" sense contributed by *mos* to the "cannot" sense of the entire auxiliary.[29] The "cannot" sense of *mos* applies to the semantic relation of the verb it modifies, which is the negative auxiliary *ha-ta* in this case. However, the semantic relation of *ha-ta* is NEG, and I assume that the sense of "cannot" is semantically meaningless applied to this relation. In the lexical entry in (288), the negative auxiliary *hata*, in addition to subcategorizing for *mos*, has to specify its own CONTEXT information of "cannot". We cannot allow the "cannot" sense to spread somehow from *mos* to *ha-ta* to the verb which is the complement of the auxiliary *mos ha-ta*, because any general spreading mechanism would create similar spreading of the "cannot" sense in other verbal complement situations, such as when *mos* precedes and negates the causative auxiliary, but not the lower verb. As it seems most linguistically plausible that the "cannot" sense of *mos* is indeed directly responsible for the "cannot" sense of *mos ha-ta*, I envision further semantic research on the NEGATION relation creating a simpler account for how "cannot" in the NEGATION relation is transferred to its SOA-ARG, but I will not attempt such a simplification here.

Once *mos* has combined with *hata*, this complex functions similarly to the single lexical item *anh-ta*.

[29] It is possible that we should just treat *mos ha-ta* as an unanalyzed form. If we took this route, we would not have the obligation of specifying *mos* to be able to combine with the negative auxiliary *ha-ta*, and not the other verbal complex forming auxiliaries. I have omitted that specification from this section.

3.6.3 Conclusion: Negation in Causatives

In this section, I have given an analysis for the negative particles and the negative auxiliaries, showing how the scope of negation relates to the syntactic constituent structure, through information specified in the MOD value of the negative particle and the COMPS list of the negative auxiliary. Negative particles contrast with adverbs in being introduced by the Head-Adjunct Schema, and not by a lexical rule. This contrast reflects the possibility for the causative verb to inherit adverbs modifying the lower verb, but not to inherit negation of the lower verb.

The fact that periphrastic causatives can have negation of the causation or negation of the lower verb is related to the fact that they involve two separate verbs in the syntax. These two verbs can each combine with a negative particle or be the complement of a negative auxiliary. The lexical causatives involve a verb stem combined lexically with a causative suffix, so only the complete causative verb is available to combine with negative particles or negative auxiliaries, making negation of the lower verb in a lexical causative impossible.

3.7 Chapter Conclusion

This chapter has provided the basic foundations of my analysis, giving an account of the constituent structure, and semantic content for adverbial modification and negation.

First, I presented the foundations of HPSG theory, including lexical items, grammar schemata, and principles of the theory. With that background, I described an HPSG analysis of constituent structure, phonological phrasing, adverbs and modification, and negation. This chapter has given the basic shape of my analysis, concentrating on providing explicit HPSG lexical entries and grammar schemata.

The next chapter completes my analysis by addressing the central issue of many accounts of Korean causatives, namely, case marking.

Chapter 4

Case Marking

Case marking has been a central concern of most analyses of Korean causatives, and this chapter addresses that concern by providing an account of Korean case which extends to cover case marking in lexical and periphrastic causatives. The chapter explores issues in case marking with several different kinds of reader in mind, thus the sections are divided to enable readers to find the most relevant information and discussions of their concerns. For readers unfamiliar with Korean, I first review the basic facts of Korean case marking which will interact with my analysis of the causative. The following section will summarize a range of different approaches to analyzing Korean case, and the relevant points of contention in the theoretical debate over analyzing case marking. The subsequent section will discuss two central case issues with particular regard to HPSG theory: grammatical vs. semantic case and lexical vs. syntactic case marking. After these three background sections reviewing the basic case facts and the theoretical context of several linguistic frameworks, as well as HPSG, I provide my own analysis of Korean case marking in one section, and demonstrate how my adopted analysis accounts for case in causatives in the final section of the chapter.

4.1 Basic Case Facts in Korean

In this section, I will outline the basic facts of Korean case marking, leaving most details of my analysis aside until Section 4.5. This section will include certain points of my analysis which follow from my theoretical assumptions, but are not critical to the main conclusions of my analysis. I begin the section with an examination of the basic appearance of case markers in Korean, including evidence for their morphological attachment. Next I review the case assignments to various grammatical relations, beginning with nominative subjects. In addition to the accusative/nominative alternation on objects, I discuss other aspects of the accusative/nominative opposition in Korean, in duration adverbials and elsewhere. The next major class of case marking in Korean comprises the many forms of semantic case. Following this, I discuss the dative/accusative alternation and the combination of several case markers on a single noun, known as "Case Stacking".

4.1.1 Case Morphology

All Korean case markers appear after the noun which they case-mark, as exemplified by the case markers in boldface in (289). In line with the position supported later in this section, I will gloss all case markers as suffixes.

(289) a. Ai-**ka** chinkwu-**eykey** kong-**ul** tenci-ess-ta
child-Top friend-Dat ball-Acc throw-Pst-Dec
'The child threw the ball to a friend.'

b. Han-si-**ey** pihayngki-**lo** Sewul-**eyse** ttena-ss-ta
one-o'clock-at plane-Inst Seoul-from leave-Pst-Dec
'At one o'clock I left Seoul by plane.'

Evidence for treating case marking in Korean as morphological comes from two areas: phonological alternations in case markers and idiosyncratic forms of nouns in particular cases.[1]

[1]See Y. Cho and Sells (1995) for a more comprehensive discussion of these issues.

4.1.1.1 Phonological Alternations

Following the traditions of Lexical Phonology (Kiparsky 1982, Mohanan 1986), I look for signs of phonological interaction between two items, when phonologically similar, uncontestedly separate words do not show the same interaction, as a sign that these items are likely to be lexically combined. Many Korean case markers have different forms, depending on the phonological characteristic of the nouns to which they attach: whether it ends in a consonant or a vowel. A selection of these alternating case markers is listed in the table below,[2] followed by a few other similar alternating suffixes listed in the lower table.

(290)

Case	after Consonant	after Vowel
Nominative	-i	-ka
Accusative	-ul	-lul
Instrumental	-ulo	-lo
Locative	-eyse	-eyse/-se
Comitative	-kwa	-wa

Other Suffixes	after Consonant	after Vowel
Topic	-un	-nun
'or'	-ina	-na
'even', N 'or something'	-ilako	-lako
'any'	-ilato	-lato

All of these alternations, except the locative, are obligatory and exceptionless. The first syllable of the locative marker *-eyse* can optionally delete after a vowel in casual speech (Young-mee Yu Cho, 1989 class lectures). Some examples of these alternations follow. The noun *yelum* 'summer' ends in the consonant *m*, while the noun *hakkyo* 'school' ends in the vowel *o*. Thus, the nominative forms of these nouns are *yelum-i* 'summer-Nom' and *hakkyo-ka* 'school-Nom'. Attaching the suffixes

[2]The Instrumental case marker has a third condition on its variation not listed in the table. After a noun ending in the consonant *l*, the form *-lo* is used.

-i and *-ka* to the opposite nouns results in ungrammatical forms, namely **yelum-ka* and **hakkyo-i*. In the accusative, these nouns will be *yelum-ul* 'summer-Acc' and *hakkyo-lul* Giving these nouns the opposite case marker is not possible, as seen in the ungrammatical forms **yelum-lul* and **hakkyo-ul*. This kind of phonological distinction between consonants and vowels is typical of morphology, while syntax is expected not to depend on the phonological shape of lexical items. The clearly separate words of Korean never show the kind of alternations outlined in (290).

As Inkelas (1989) makes clear in her arguments for the orthogonality of morphological and lexical prosodic structure, clitics can also have phonological conditions on their appearance, even though they are syntactically independent items. Thus, evidence of phonological interactions is not incontrovertible evidence of morphological unity. Still, in interests of simplicity, our account should avoid postulating mismatches in phonological and morphological wordhood without clear motivation.[3] Thus the phonological alternations provide us with some evidence of morphological attachment, a position which is strengthened by the existence of idiosyncratic case-marked forms.

4.1.1.2 Idiosyncratic Forms

Idiosyncratic forms representing the combination of two items are most naturally accounted for as lexically listed combinations. Furthermore, the simplest account involves the non-idiosyncratic combination of similar items taking place in the same

[3]The case of Korean case markers differs from the *a/an* alternation in English, which may be clitics in Inkelas' sense. Analyzing *a* and *an* as morphologically attached to the following item would require an analysis in which the specificity marking for a head noun could appear either on that noun, as in *a cat*, or on an adjective preceding that noun, as in *a big cat*, or on other items within the NP preceding the head noun, as in *an extremely big cat*. It would be necessary to provide for any of these preceding elements to contribute specificity information to the phrase as a whole, while restricting the occurrence of an article to the linearly first item in a phrase. This analysis would be theoretically possible, but not economical. Furthermore, the *a/an* alternation can involve whole utterances treated as a noun, as in *John shouted out an "I know!"*, cited by Rotenberg (1978:60) in his discussion of the distribution of *a* and *an* in English. Korean case markers always occur immediately after the noun, which is always final within the NP. Rotenberg (1978:38) also cites examples of pauses occurring between *a* and *an* and the following word in English, while Vandesande (1968:68) states that pauses do not occur between a noun and its case marker in Korean.

way as the idiosyncratic combinations.[4] Thus, the existence of several idiosyncratic case-marked forms in Korean supports the attachment of case suffixes in the lexicon, with all case-marked forms occurring as lexical items. Clitics are morpho-syntactically separate items from their hosts, and thus are not predicted to have idiosyncratic clitic/host combinations.

Idiosyncratic case-marked forms occur in two forms of the first-person singular pronoun in nominative case. In most cases, the first-person singular pronoun for equal social level is *na*, as in *na-lul* 'I-Acc', *na-hanthey* 'I-Dat', and *na-eykeyse* 'I-from'. The corresponding nominative pronoun, however, is *nay-ka*, instead of **na-ka*.[5] This form is purely idiosyncratic, as the phonologically similar noun *cha* 'car' is *cha-ka* in the nominative, as expected.

The first-person singular pronoun for humble social level has a parallel idiosyncrasy in nominative case. The basic form is *ce*, as seen in the ordinary forms *ce-lul* 'I-Acc', *ce-hanthey* 'I-Dat', and *ce-eykeyse* 'I-from'. When the humble social level pronoun is nominative, it takes the form *cey-ka*, instead of **ce-ka*. Phonologically similar words do not add a *y* to their stems in the nominative, as seen in the nominative of *pye* 'rice plant', which is *pye-ka* 'rice plant-Nom'.

A third idiosyncratically case-marked form is the nominative form of the interrogative pronoun *nwukwu*. Other cases of this pronoun are completely regular, as in *nwukwu-lul* 'who-Acc', *nwukwu-hanthey* 'who-Dat', and *nwukwu-eykeyse* 'who-from'. In the nominative, however, the interrogative pronoun occurs without the second syllable of its stem as *nwu-ka* 'who-Nom', and cannot take the full, uncontracted expected form of **nwukwu-ka*.

Optional contractions of certain nouns and specific case markers also occur, such as the contracted form *i-key* 'this thing (Nom)' (Vandesande 1968:232). The uncontracted form *i-kes-i* 'this thing-Nom' is also grammatical.

[4] Poser (1992) describes lexical forms blocking phrasal constructions which instantiate morphological categories. As case marking is morphological in at least some languages, if Korean case marking were syntactic, these particular idiosyncratic forms could block the non-occurring regular forms. However, there is no evidence in Korean to motivate a difference between lexical and syntactic case, and without such motivation, postulating both lexical and syntactic case marking in Korean is more complex than postulating simply one of the two.

[5] There are non-standard dialects which permit *na-ka* (Young-mee Yu Cho, p.c.).

Thus, Korean has several idiosyncratic combinations of nouns and case markers, supporting an analysis in which case markers are lexically attached.

4.1.1.3 Morphological Attachment

In light of the phonological sensitivity of some case endings and several idiosyncratic forms of certain words in particular cases, the simplest analysis of Korean case markers accounts for them as morphologically attached. The lexicon allows for the idiosyncratic forms to be specifically listed, and the phonological alternations to occur in the morphological and phonological constituent of the noun plus its case suffix. The morphological attachment of case suffixes is not in any way critical to my overall analysis of causatives; however, in order to put forward complete lexical entries and clear explanations of case, finding the best account of the status of case markers is useful.

After this look at case markers and the nouns they attach to, we can now turn to the question of how various cases interact with grammatical relations and other categories of how nouns contribute information to a sentence.

4.1.2 Nominative Subjects

I begin the discussion of case on nouns within a sentence with the simplest example, that of nominative on subjects. Many subjects in Korean clearly bear nominative case, as in (291).

(291) Nay-**ka** ttek-ul mek-ess-ta
I-Nom rice.cake-Acc eat-Pst-Dec
'I ate the rice cake.'

Subjects which are social superiors in some sense can bear the honorific nominative marker *-kkeyse*, as in (292). The use of *-kkeyse* is more prevalent among older Korean speakers; younger speakers often may use the regular, non-honorific nominative marker *-i/-ka* even for honored persons, rather than the honorific *-kkeyse* (Youngmee Yu Cho p.c.). Unlike the plain nominative marker *-i/-ka*, *-kkeyse* occurs only on subjects, and does not appear on the other kinds of nominative NP's discussed in following sections.

(292) Sensayngnim-**kkeyse** ttek-ul capswusi-ess-ta
teacher-HNom rice.cake-Acc Hon.eat-Pst-Dec
'The teacher ate the rice cake.'

Often subjects will bear the topic marker *-(n)un* instead of the nominative marker *-i/-ka*, to show emphasis or contrast, or continuation of a topic (Vandesande 1968:71). Subjects are not distinguished by this ability; any noun phrase within a sentence may bear the topic marker, and several noun phrases within the same sentence may bear the topic marker simultaneously, as Vandesande exemplified with the following.

(293) Hankwuk-**un** nalssi-**nun** coh-a.yo
Korea-Top weather-Top good-End
'In Korea (I'm not speaking of India) the weather (I'm not speaking of, e.g., the roads) is fine.'

The topic marker occupies the same morphological position as the nominative case marker, so the nominative case marker never cooccurs with the topic marker, on subjects or elsewhere. Neither ordering of the two case markers together, **nalssi-ka-nun* 'weather-Nom-Top' and **nalssi-nun-i*, 'weather-Top-Nom' are possible Korean words. Nevertheless, a topic-marked subject is still best treated as nominative. We can see this in the case marking of case-agreeing floated quantifiers, which bear nominative case when quantifying a topic-marked subject.

(294) Chayk-**un** sey-**ka** kyosil-ey iss-ta
book-Top three-Nom classroom-Loc exist-Dec
'Three books are in the classroom.'

Although other languages, such as English, may have accusative case on subjects of non-finite clauses, accusative case is never found in Korean on a subject. Korean has no clear finite/non-finite distinction, and any accusative NP's denoting the person or object bearing the role of a lower clause subject will be a matrix clause element controlling the lower subject (K. Hong 1990c), as in (295b)'s accusative variant. In support of an argument that, in Government-Binding theory, nominative case cannot be assigned by INFL in Korean, Y. Lee (1990) points out that both tensed and tenseless clauses can have either nominative or accusative subjects. The accusative subjects in her analysis would be higher clause objects coindexed with a null lower subject in my analysis, but her point stands, that tense marking of the verb has no relation to the case marking possibilities of the subject. Two of her examples are given below, with (295a) showing that nominative case can appear on the subject of a verb without tense marking, and (295b) showing that both nominative and accusative are possible on an item which may be the subject of a tensed verb, or a matrix object coindexed with an unexpressed subject.

(295)	a.	Mary-nun	[John-**i**	phathi-ey	ka-tolok]	seltuk.hay-ss-ta
		Mary-Top	John-Nom	party-Dat	go-so.that	persuade-Pst-Dec
		'Mary persuaded John to go to the party.				

b.	Na-nun	John**-i/-ul**	chencay-**ess**-ta-ko	mit-ess-ta
	I-Top	John-Nom/-Acc	genius-Pst-Dec-Quot	believe-Pst-Dec
	'I believed John to be/have been a genius.'			

While Korean has no accusative subjects, for some speakers dative-marked subjects are possible with transitive psych verbs and verbs of possession in Korean (K. Hong 1991b). All verbs which permit dative subjects will also permit nominative subjects. Some examples are given below. Note that transitive psych verbs have nominative objects, which will be discussed in the following section, but the subjecthood status of the first item can be seen in the fact that an honorable dative subject triggers the subject honorification suffix *-(u)si* on the verb.

(296)	a.	Halapeci-**hanthey**	kohyang-i	kuliw-usi-n-ka	po-ta
		grandfather-Dat	hometown-Nom	miss-Hon-Pres-Cmp	seem-Dec
		'Grandfather seems to miss his hometown.'			

b. Halapeci-**kkeyse** kohyang-i kuliw-usi-n-ka po-ta
grandfather-HNom hometown-Nom miss-Hon-Pres-Cmp seem-Dec
'Grandfather seems to miss his hometown.'

Intransitive psych verbs do not permit dative marking on their subjects, as seen in Hong's example below.

(297) a. Minswu-ka sulphu-ta
Minswu-Nom be.sad-Dec
'Minswu is sad.'

b. *Minswu-eykey sulphu-ta
Minswu-Dat be.sad-Dec
'Minswu is sad.'

I will treat the dative subjects similarly to the topic-marked subjects, that is, as nominative without overt nominative marking, and with the additional semantic information added by their dative or topic marker. As the analysis of dative subjects will not bear particularly on the analysis of Korean causatives, this choice will not affect the overall analysis.

4.1.3 Accusative or Nominative Objects

Case marking on direct objects involves either accusative or nominative case. The most typical objects, those of agentive verbs, bear accusative case, as in (298).

(298) a. Nay-ka ttek-**ul** mek-ess-ta
I-Nom rice.cake-Acc eat-Pst-Dec
'I ate the rice cake.'

b. Nay-ka kong-**ul** tenci-ess-ta
I-Nom ball-Acc throw-Pst-Dec
'I threw the ball.'

Psych verbs and verbs of possession take nominative objects.

(299) a. Nay-ka kohyang-**i** kulip-ta
I-Nom hometown-Nom miss-Dec
'I miss my home town.'

b. Nay-ka kimchi-**ka** coh-ta
I-Nom kimchee-Nom like-Dec
'I like kimchee.'

c. Nay-ka manh-un ton-**i** iss-ta
I-Nom be.much-Adj money-Nom have-Dec
'I have a lot of money.'

The precise semantic characteristic which determines the case of objects has been disputed. Y. Kang (1986) argues that stative verbs have nominative objects, while non-stative verbs have accusative objects. Young-joo Kim (1990a) argues that agentivity, rather than stativity is the relevant factor in this case alternation, with agentive verbs having accusative objects and non-agentive verbs having nominative objects. I will tentatively adopt Kim's position here. If the factors determining object case marking are determined to require a more complex semantic analysis than a simple binary opposition of agentive vs. non-agentive, then this more complex analysis would be compatible with my account as well. For now, I will assume the simplest analysis.

Multiple accusative objects are possible for a class of verbs in which the indirect object may be marked either dative or accusative. Which verbs belong to this class varies from speaker to speaker, but all speakers allow multiple accusatives for the verb *cwu-ta* 'give', as seen below.

(300) a. Swuni-ka Minswu-**lul** chayk-**ul** cwu-ess-ta
Swuni-nom Minswu-**Acc** book-Acc give-Pst-Dec
'Swuni gave Minswu a book.'

b. Swuni-ka Minswu-**eykey** chayk-**ul** cwu-ess-ta
Swuni-nom Minswu-**Dat** book-Acc give-Pst-Dec
'Swuni gave Minswu a book.'

Thus, the important points about object case marking are the alternation between nominative and accusative object based on the agentivity of the verb, and the fact that multiple accusative objects are possible in Korean, unlike in Japanese, with its "Double o" constraint (Shibatani 1973b). In the following two sections, I discuss other instances of nominative and accusative case marking in Korean.

4.1.4 Accusative or Nominative Duration Adverbials

As discussed in Chapter 2, duration adverbials in Korean may optionally bear accusative or nominative case, depending on the stativity of the verb they occur sister to. I repeat Y.-S. Lee and Wechsler's (1993, 1996) examples in (301), with accusative duration adverbials sister to non-stative verbs, and Maling's (1989) example in (302), with a nominative duration adverbial sister to a stative verb.

(301) a. Tom-un kongpwu-lul **twu-sikan-tongan-ul** hay-ss-ta
Tom-Top study-Acc two-hour-during-Acc do-Pst-Dec
'Tom studied for two hours.'

b. Tom-un mikwuk-ul **twu-pen-ul** pangmwun.hay-ss-ta
Tom-Top America-Acc two-time-Acc visit-Pst-Dec
'Tom visited America two times.'

(302) Mwun-i **han-sikan-tongan-i** yel-ie iss-ta
door-Nom one-hour-during-Nom open-Pass be-Dec
'The door remained open for an hour.'

As we saw in Chapter 2, the critical factor determining the case of the adverbial is the stativity of the verb the adverb is sister to, rather than the one it modifies. Causatives of statives involve all adverbs being sister to the matrix non-stative verb, and thus the accusative case marking appropriate for non-statives is the only possible case marking for a duration adverb modifying the lower, stative clause.

(303) a. Sensayngnim-kkeyse hyukang ha-si-n sasil-i haksayng-tul-ul
Teacher-HNom skip.lecture do-Hon-Pst fact-Nom student-Plur-Acc
myech-sikan-**ul** [kippu-key ha-si-ess-ta]
several-hour-Acc be.happy-Adv do-Hon-Pst-Dec
'The fact that the teacher skipped lecture made the students happy for several hours.'

b. *Sensayngnim-kkeyse hyukang ha-si-n sasil-i haksayng-tul-ul
Teacher-HNom skip.lecture do-Hon-Pst fact-Nom student-Plur-Acc
myech-sikan-**i** [kippu-key ha-si-ess-ta]
several-hour-Nom be.happy-Adv do-Hon-Pst-Dec
'The fact that the teacher skipped lecture made the students happy for several hours.'

We see that this is not a case of semantic coercion, but rather of syntactic sisterhood by the fact that the data for embedding causatives with nominative causees are different. In this case, the duration adverb remains sister to the verb it modifies and can have nominative case.

(304) a. ?Haksayng-tul-i cwu-mal-tongan-**i** kippu-tolok
student-Plur-Nom week-end-during-Nom be.happy-in.order.that
sensayngnim-kkeyse kumyoil-ey swukcey-lul an nay-si-ess-ta
teacher-HNom Friday-on homework-Acc not assign-Hon-Pst-Dec
'In order for the students to be happy during the weekend, the teacher did not assign homework Friday.'

b. *Haksayng-tul-i cwu-mal-tongan-**ul** kippu-tolok
student-Plur-Nom week-end-during-Acc be.happy-in.order.that
sensayngnim-kkeyse kumyoil-ey swukcey-lul an nay-si-ess-ta
teacher-HNom Friday-on homework-Acc not assign-Hon-Pst-Dec
'In order for the students to be happy during the weekend, the teacher did not assign homework Friday.'

Thus, nominative and accusative marking on duration adverbials reflects the semantic classification of stative or non-stative of the verb they occur sister to in syntax.

4.1.5 Other Occurrences of Nominative and Accusative

In this section, I briefly mention some other occurrences of nominative and accusative case in Korean, namely topics, raised objects, whole-part constructions, and case-agreeing quantifiers.

In the section on nominative subjects, we saw instances of subjects marked with the topic marker *-(n)un*, as well as an example of a topic-marked item which was not a subject. One additional wrinkle to the entire concept of nominative case is that nominative case marking may also signal certain topics, as in the initial nominative *kyewul-i* 'winter-Nom' in (305), taken from K. Hong (1990c). I will not be addressing any issues raised by these nominative topics in my account of case.

(305) I-pen kyewul-**i** kwankwangkayk-i cey.il cek-ta
this-time winter-Nom tourist-Nom first be.few-Dec
'This winter we have the fewest number of tourists.'

Nominative topics are closely related to a certain class of accusative NP's. K. Hong (1990c) argues that a construction resembling Subject-to-Object Raising in Korean actually involves grammatical objects of raising-type predicates, which are characterized by the lower clause, and need not be identified with the lower clause subject in particular. Hong's example in (305) of a nominative topic thus corresponds to an accusative object of the verb *mit-nun-ta* 'believe' in (306).

(306) Na-nun i-pen kyewul-**ul** [kwankwangkayk-i cey.il cek-ta-ko]
I-Top this-time winter-Nom tourist-Nom first be.few-Dec-Quot
mit-nun-ta
believe-Pres-Dec
'I believe this winter we have the fewest number of tourists.'

Whole-part constructions also give rise to additional nominative and accusative phrases in sentences. A whole and a part may agree in case, giving rise to sentences such as (307) from C. Youn (1990) and (308) from Maling and S. Kim (1992). Following Maling and S. Kim (1992) and K. Hong (1991b:225), I analyze the part NP as being the one which truly fills the argument position in these sentences. The whole NP is an adjunct which may agree in case with the part NP.

(307) Swuni-**ka** nwun-**i** yeyppu-ta
Swuni-Nom eyes-Nom be.pretty-Dec
'Swuni's eyes are pretty.'

(308) Chelswu-ka Swuni-**lul** meli-**lul** piski-ko iss-ta
Chelswu-Nom Swuni-Acc hair-Acc comb-Cmp be-Dec
'Chelswu is combing Swuni's hair.'

A final area in which we see nominative and accusative case marking is on case-agreeing quantifiers. When quantifiers appear separately from an accusative or nominative NP they quantify, they may bear the case of that NP.[6] The examples below are taken from K. Hong (1990b).

(309) a. Haksayng-**i** ecey seys-**i** o-ass-ta
student-Nom yesterday three-Nom come-Pst-Dec
'Three students came yesterday.'

b. Nay-ka haksayng-**ul** wuyenhi seys-**ul** manna-ss-ta
I-Nom student-Acc by.chance three-Acc meet-Pst-Dec
'I happened to meet three students.'

Thus, nominative and accusative case occur in several places other than directly on subjects and objects, namely on topics, raised objects, whole-part constructions, and case-agreeing quantifiers.

4.1.6 Semantic Case

Korean NP's which are not core grammatical functions such as subject or object, and which do not fall under the additional instances of nominative and accusative case discussed earlier, bear semantic case. In (310), the semantic case markers are boldfaced.

[6] K. Hong (1990b) argues that floated quantifiers may agree in case with NP's of other cases, as long as the quantifier contributes some additional semantic information, such as a delimiting particle.

(310) Nay-ka han-si-**ey** pihayngki-**lo** Sewul-**eyse** ttena-ss-ta
I-Nom one-o'clock-at plane-Inst Seoul-from leave-Pst-Dec
'At one o'clock I left Seoul by plane.'

Other semantic case markers include *-kkaci* 'until', *-(k)wa* 'with', *pwuthe* 'from, since', *-tele* 'to', *hanthey* 'to', and *-eykey* 'to'.[7] Semantic case-marking indicates semantic information which the NP contributes to the relation described by the verb, unlike the grammatical cases of nominative and accusative, which may indicate particular grammatical functions. I will explore the distinction between grammatical and semantic case in Section 4.4.1. Before moving on to these other more particular aspects of semantic case, I want to establish the constituent structure of semantically case marked NP's, as this will be necessary for full analyses of Korean sentences in my account.

4.1.6.1 Korean has NP's and no PP's

In my account of case marking, I include not only phrases such as nominative and accusative NP's, but also a wide range of phrases which would correspond to PP's in many other languages. I will treat all these phrases as NP's and not analyze any Korean phrase as a PP, a position also taken by Cho and Sells (1995). The motivation for this position is based on the similar morphological attachment of the suffixes for all forms of case markers, in conjunction with the form taken by modifiers of all of these phrases.

All the arguments above for morphological attachment of case markers based on idiosyncratic forms involved nominative and accusative case markers. This fact alone could support calling nominative and accusative phrases NP's, while calling other case-marked phrases PP's. However, the morphological ordering seen on nouns with

[7]Many spatial concepts which could be expressed with prepositions in English, such as 'before' are expressed with a semantically case-marked noun in Korean, similar to the 'in front of' construction in English. "In front of the post office" would be translated as *wucheykwuk aph-ey* 'post.office before-Loc', with the "before" concept expressed by *aph-ey*, composed of the noun *aph* plus the semantic case marker *-ey*. Similarly, "behind" in Korean is expressed closer to an "in back of" form, as in *paykhwacem twi-ey* 'department.store back-Loc'.

multiple case suffixes makes it clear that nominative and accusative case suffixes are attached more peripherally to the noun than other case suffixes.

We can see this by comparing the order of the case suffix and the delimiter *-man* 'only'. Semantic case markers occur before *-man* 'only' in the word, as in *hakkyo-ey-man* 'school-Dir-only' or *hakkyo-kkaci-man* 'school-up to-only'. Nominative and accusative markers occur after *-man* 'only', as in *hakkyo-man-i* 'school-only-Nom' and *hakkyo-man-ul* 'school-only-Acc'. In the less standard Korean phenomenon called Case Stacking, where a noun appears to bear two markers from ordinarily distinct cases, we see the same ordering between semantic case markers and nominative and accusative markers. *yeca-eykey-ka* 'woman-Dat-Nom' and *yeca-eykey-lul* 'woman-Dat-Acc' are possible morphological orderings for these words, while the reverse is not true, with no Korean speakers accepting **yeca-ka-eykey* or **yeca-lul-eykey*.

Thus the semantic case markers must be morphologically attached, just as the nominative and accusative case markers are. Furthermore, any advantage gained in distinguishing NP's and PP's by case marker would be lost in the Case Stacking examples, where we would have to have a case marker attached to a postposition, giving us an NP inside a PP itself nested inside another NP, all for one morphological unit. A simpler position is to treat all case suffixes as forming the same kind of phrase from a noun.

Once we accept that all case markers are lexically attached, the form taken by modifiers of these phrases gives us a strong reason not to make a categorial distinction between NP's and PP's. In a language where we would want to make this kind of distinction, we can look for different forms for modifiers of NP's and PP's, with PP's having the same form of modifiers as VP's. In English, this does occur, with adjectives like *direct* modifying nouns like *path*, while adverbs like *directly* modify PP's like *down the path*, just as they modify VP's like *addressed the problem*.

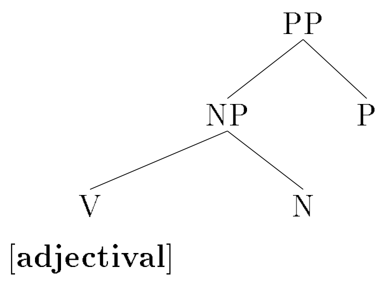
(311) a. A **direct** path

b. **Directly** down the path

c. I addressed the problem **directly**.

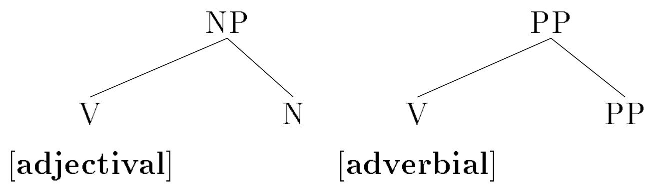
Since the Korean noun and the case marker are lexically combined, an adjective could not see into the structure of a PP to determine that a noun-modifying form would be appropriate, as would be possible in a language like English, in a phrase like *down the direct path*, where a structure like (312) is possible.[8]

(312)



Thus, there are two possibilities we can look for with modifiers in Korean: either the modifiers of the phrases in question can be the same modifiers as for nouns, or they can be the same modifiers as for verbs. If there are both NP's and PP's in Korean, we would expect a distinction between the NP's and PP's in this respect. (313) gives trees for the expected modifications for a lexically combined N with case, or a lexically combined PP.

(313)



The Korean data shows that modifiers have the same form when they occur with either the expected noun phrases such as nominative-marked nouns and the possible postpositional phrases for more semantically oriented case marked nouns. The same modifier, *pokcap.ha-n* ‘complicated’, is found in both (314a) with a nominative phrase and (314b) with the semantic case marker *eyse* ‘from’.

[8]Korean does not have an adjectival category, so I have used V[adjectival] for the adjective-like verbs which modify nouns and V[adverbial] for verbs in the adverbial form. This makes the trees slightly inappropriate for the actual English data, but useful as a representation for a hypothetical language similar to Korean, but without lexically attached case markers.

(314) a. pokcap.ha-n chayk-i
complicated-Adj book-Nom
'a complicated book'

b. pokcap.ha-n chayk-eyse
complicated-Adj book-from
'from a complicated book'

The form of the modifier in (314) differs from the form that it would take when modifying a verb, as in (315a). This form is not possible with phrases with semantic cases, as in (315b), as would be expected if they were PP's. As expected, more prototypical NP's such as nominative nouns, as in (315c) also cannot occur with the same modifier as verbs.

(315) a. Na-nun pokcap.ha-key ss-ess-ta
I-Top be.complicated-Adv write-Pst-Dec
'I wrote in a complicated way.'

b. *pokcap.ha-key chayk-eyse
complicated-Adv book-from
'from a complicated book'

c. *pokcap.ha-key chayk-i
complicated-Adv book-Nom
'a complicated book'

This data from modification argues against any categorial distinction between semantic case-marked NPs and more grammatically case-marked NPs in Korean. As expected, there is a clear difference in the forms used for modification of nouns as opposed to verbs.

Once we have decided that there is no distinction between NP's and PP's in Korean, the category which more closely fits the entire class is NP rather than PP. The modification distinction above is consistent with nouns opposed to verbs in many languages. Nouns also seem to be more semantically basic, and thus preferable to retain cross-linguistically, than prepositions or postpositions. Finally, colloquial speech permits null accusative and nominative case markers, so that nouns with no overt case marker, such as *chayk* 'book', can be interpreted as nominative or accusative in context. It is more plausible that such an example is an NP with a null case marker than a PP headed by a null preposition. These considerations support including NP's and no PP's in our account.

4.1.7 Dative/Accusative Alternation

Dative case has a particular status among the semantic cases for its alternations with nominative and accusative case. In the discussion of case marking of subjects, we saw that dative could alternate with nominative in a certain class of verbs. Dative alternates with accusative case in another class of verbs.

The dative/accusative alternation occurs on the recipient argument of the lexical items *cwu-ta* 'give', seen in the example below, and *kaluchi-ta* 'teach'.

(316) a. Swuni-ka Minswu-**eykey** chayk-ul cwu-ess-ta
Swuni-nom Minswu-**Dat** book-Acc give-Pst-Dec
'Swuni gave Minswu a book.'

b. Swuni-ka Minswu-**lul** chayk-ul cwu-ess-ta
Swuni-nom Minswu-**Acc** book-Acc give-Pst-Dec
'Swuni gave Minswu a book.'

The class of verbs permitting the dative/accusative alternation can also include lexical causatives, and verbal compounds formed with the benefactive auxiliaries *cwu-ta* 'give' and *tuli-ta* 'give (to an honored recipient)' (K. Hong 1991b), depending on the speaker. (317) gives an example of this alternation with a lexical causative, and (318) gives an example with the auxiliary *cwu-ta*.

(317) a. John-i Mary-**eykey** os-ul ip-hi-ess-ta
John-Nom Mary-**Dat** clothes-Acc wear-Caus-Pst-Dec
'John made Mary put on the clothes.'

b. John-i Mary-**lul** os-ul ip-hi-ess-ta
John-Nom Mary-**Acc** clothes-Acc wear-Caus-Pst-Dec
'John made Mary put on the clothes.'

(318) a. Swuni-ka Minswu-**eykey** chayk-ul ilk-e cwu-ess-ta
Swuni-Nom Minswu-**Dat** book-Acc read-Cmp give-Pst-Dec
'Swuni read a book for Minswu.'

b. Swuni-ka Minswu-**lul** chayk-ul ilk-e cwu-ess-ta
Swuni-Nom Minswu-**Acc** book-Acc read-Cmp give-Pst-Dec
'Swuni read a book for Minswu.'

In all of these examples, either dative or accusative case is possible on the recipient or beneficiary argument with no other apparent differences in the sentences. There is no evidence for any change in the constituent structure corresponding to the different case markings. The sentences with benefactive auxiliaries would involve the verbal complexes seen in some of the nominative/accusative alternation sentences, but the verbal complexes here do not result in a single permissible case specification distinct from the lexical case specification.

4.1.8 Case Stacking

Some Korean speakers allow a single noun to bear multiple case markers at once.[9] This multiple case marking is known as Case Stacking (Gerdts and Youn 1989, K. Hong 1991b, J. Yoon 1996), and some dialects do not allow any Case Stacking, while others have different restrictions on particular morphological combinations of which case markers can stack. In general, Case Stacking permits any number of semantic cases to co-occur, and either nominative or accusative case may occur along with semantic

[9] Korean is not unique in permitting multiple case markers on a single noun; J. Yoon (1996) compares Case Stacking in Korean with that in Cuzco Quechua, and includes citations for Case Stacking in several other languages. Though reflecting different properties from the Korean Case Stacked nouns, multiple case markers are also possible on nouns in various Australian languages (Dench and Evans 1988).

cases, but nominative and accusative cannot occur together. In this section, I provide examples of these facts.

Certain participants in some actions may be semantically characterizable by several different roles, and thus able to bear any of several semantic case markers. For example, sending a letter intending that a school receive it and sending a letter in the direction of that school may be equally good characterizations of a situation, giving rise to acceptable case markings on the recipient argument of either the dative marker *-ey* or the directional case marker *-lo*. This situation is illustrated in the examples below.

(319) a. Chelswu-ka hakkyo-**ey** phyenci-lul pwuci-ess-ta
Chelswu-Nom hakkyo-Dat letter-Acc mail-Pst-Dec
'Chelswu sent the letter to the school.'

b. Chelswu-ka hakkyo-**lo** phyenci-lul pwuci-ess-ta
Chelswu-Nom hakkyo-Dir letter-Acc mail-Pst-Dec
'Chelswu sent the letter to(ward) the school.'

In instances where several different semantic characterizations of a single participant are possible, Korean dialects which allow Case Stacking permit the appearance of all relevant semantic case markers together on the same noun. For example, the dative *-ey* and the directional *-lo* can both be suffixed together to the recipient, as seen in (320).[10]

(320) Chelswu-ka hakkyo-**eykey-lo** phyenci-lul pwuci-ess-ta
Chelswu-Nom school-Dat-Dir letter-Acc mail-Pst-Dec
'Chelswu sent the letter to(ward) the school.'

[10]In analyzing Korean nominal and verbal suffixes, it can be difficult at times to decide exactly which items are morphologically single, inseparable items and which items are morphologically complex. I follow Gerdts and Youn (1989) in treating the combination of items such as *-ey* and *-lo* as morphologically complex, instead of as a single suffix *-eylo*, because the meaning of the whole can be traced to the meanings of the two component suffixes. Under an approach of analyzing items into the smallest components possible, the honorific nominative suffix *-kkeyse* might be related to the honorific dative *-kkey* plus a second element *-se*, and the semantic case marker *-eyse* 'from' could similarly be related to the semantic case marker *-ey* 'to' plus a second element *-se*, among other similar examples. However, these examples do not exhibit clear enough semantic compositionality for me to abandon the conventional morphological analyses of the Korean linguistic literature.

If semantically compatible, three case markers can occur together on a noun, as seen in Gerdts and Youn's example in (321), where the comitative marker *-wa* occurs along with the dative *-eykey* and the directional *-lo*.

(321) Chelswu-ka Yengswu-**eykey-lo-wa** na-ey-lo kong-ul tenci-ess-ta
Chelswu-Nom Yenswu-Dat-Dir-Com I-Dat-Dir ball-Acc throw-Pst-Dec
'Chelswu threw the ball to(ward) Youngswu and me.'

In my account, dialects which do not permit Case Stacking will rule out examples such as (320) and (321) by morpheme combination constraints. Dialects which do accept (320) will naturally be predicted under my account, because each case morpheme will contribute its own distinct role specification to the NP which bears it. As long as the real world referent indicated by the semantic index is semantically compatible with the multiple roles, the Case Stacked sentence will be perfectly acceptable.

4.2 Theoretical Background

With the basic facts of Korean case in mind, I will now briefly review the various theoretical approaches to the case facts of Korean taken in various frameworks, namely, Relational Grammar, Categorial Grammar, Lexical-Functional Grammar, and Government-Binding Theory, and HPSG. I will discuss HPSG-specific case issues separately in the following section. This review is intended to show the central role of case marking in theoretical research on Korean, and to set my case analysis within a larger context, outlining the current major distinct approaches to the problems posed by these facts.

4.2.1 Relational Grammar

In classical Relational Grammar, case marking is seen as an imperfect reflection of grammatical relations. Y. Choi (1988:39) describes his conception of case as involving a default system, which assigns case corresponding to grammatical relations of the current or previous strata, in conjunction with specific rules which can determine case marking of particular items. More specifically, acting 1's (final 1's and 1-chômeurs) are assigned Nominative, acting 2's Accusative, and acting 3's Dative, while obliques bear various cases. A rule such as Passive may specify that its 1-chômeur is not marked Nominative, but instead bears a distinct case marking. Similarly, Gerdts' (1986, 1990) proposal that Causative Clause Union can occur without revaluation of terms allows a specific rule to determine the case outcome.

The classical Relational Grammar notion of case is primarily syntactic, reflecting either grammatical relations or specific rules which have applied. Case does not derive from any particular constituent structure configurations. The lack of any importance for constituent structure in determining case is consistent with the generally lesser role of constituent structure in Relational Grammar, compared to HPSG, Government-Binding Theory, and Categorial Grammar.

In some later developments of Relational Grammar, Gerdts (ms.) and Gerdts & Youn (1989) argue for more distinctions and governing principles in a theory of case, most prominently a distinction between S-Case, which is grammatical case licensed in terms of the final relational structure, and I-Case, which is licensed in initial relational structure on the basis of the semantic role of the nominal. S-Case includes Nominative and Accusative cases, with Nominative licensed by a final 1, and Accusative licensed by a final 2. I-Case includes Dative, Instrumental, and Comitative cases. The change of Dative case from reflecting relational 3-hood to reflecting a semantic role is the most salient difference of this new system.

Gerdts and Youn argue that languages may choose to resolve conflicts between I-Case and S-Case with a principle giving one of the two kinds of Case priority over the other, or languages may decide to allow either kind of case to surface wherever it is licensed. They cite Korean as a language giving no such priority to I-Case or S-Case, thus allowing Experiencers to surface in either Nominative or Dative case. Gerdts and Youn attribute shared cases between nominals and the nominals they have placed en chômage to a specific mechanism of Case Spread. While this system bears several similarities to the case marking position I will adopt, Gerdts' papers on Korean causatives are situated within the more classical Relational Grammar view of case, and thus will not have the same immediate comparability to my analysis.

The Relational Grammar view of case marking does not in any way completely determine the analysis of a sentence based upon the case of the NP's involved. Gerdts (1986, 1990) posits Clause Union accounts for periphrastic causatives with nominative, dative, and accusative causees, while E. Cho (1987, 1988) argues against Clause Union for any of these constructions, arguing instead for complete biclausal, Equi, and Raising analyses, respectively, for these forms of periphrastic causative.

4.2.2 Categorial Grammar

In Categorial Grammar, many properties rely on the central notions of combination of arguments with certain categories and the resultant formation of specific categories. The identity of the category with which an NP combines forms the heart of O'Grady's (1991) Categorial Grammar account of case marking in Korean, covering lexical and periphrastic causatives, among other constructions. For example, by O'Grady's Korean Case Conventions, nominative case occurs on an NP which combines with an IV category, that is, an Intransitive Verb or an Intransitive Verb Phrase. The IV category includes all verb phrases which have combined with all non-subject arguments, whether the head verb itself is transitive or intransitive. O'Grady's Korean Case Conventions assign accusative case to an NP which combines with a (T)TV category, i.e. a transitive or ditransitive verb.

In O'Grady's system, cases other than nominative, accusative, and genitive are seen as marking PP's, rather than NP's. Here, as in the changes over time in the various Relational Grammar accounts, the status of Dative case is interesting to focus on. O'Grady gives morphological characteristics of the dative case marker in Korean as evidence of its postpositionhood, namely that it can co-occur with topic markers, delimiters, and the conjunctive suffix, and that it cannot be omitted. However, O'Grady recognizes dative as having a unique status through his Korean Dative Convention, which states that "the dative postposition marks a nonterm bearing a verb-determined thematic role."

The Dative Convention relies on several other principal parts of O'Grady's case marking theory. Terms are distinguished from nonterms in whether they change the category of the verb they combine with, such as changing a transitive verb category to an intransitive verb phrase category. Thus, for O'Grady, dative NP's never will be subjects or transitive objects in Korean. Thematic roles also play an important role in this framework, because they provide the ordering in which a verb combines with its terms in O'Grady's Mapping Grid for Terms, taking theme arguments first, then recipients, actors next, and causers last. Thus, for O'Grady, dative NP's participate in the semantic thematic role aspects of core argumenthood, but not the syntactic combinatorial aspects.

One final note on O'Grady's position on case marking concerns his strict reliance on arguments' combinatorial order to determine their case marking. Because objects may be linearly ordered before subjects in Korean, O'Grady analyzes such OSV sentences as containing discontinuous constituents. The object combines syntactically with the verb before the subject does, even though the subject occurs linearly closer to the verb. O'Grady argues for the existence of discontinuous constituents on the basis of the effect of relative linear order on subject/object asymmetries in pronoun interpretation and quantifier interpretation.

4.2.3 Lexical-Functional Grammar

Within the framework of Lexical-Functional Grammar, K. Hong (1991b) develops an account where case marking is an indirect reflection of thematic and event structure properties of the verb. All information necessary for case marking is contained in the two levels of the Determinant Tier and the Thematic Tier.

Elements of the Determinant Tier are the Determinant and Determinee for the event described by each verb. The Determinant is the participant in the event who is the determining factor for whether the event denoted by a predicate is brought about or not. The Determinant will sometimes be a patient rather than an agent, if the patient is more responsible for the event's occurrence. The Determinee is the affected entity in the event, or one who delimits the event.

The Determinant and Determinee affect the assignment of all cases, directly or indirectly. Accusative is associated only with a Determinee in the presence of a Determinant argument, while nominative is given by default. The lack of a Determinant in stative verbs results in default nominative case being the only possible non-semantic case for its arguments; a Determinee needs a Determinant present in order to bear accusative case.

Semantic cases, including postpositions, cannot occur on a Determinant. The Thematic Tier, whose elements are thematic roles, also governs the assignment of semantic case, because one semantic case is associated with each thematic role. While they do rely on semantic information, nominative and accusative case are distinguished from the more semantic cases in not being correlated with theta role. A further condition governing semantic cases is that a semantic case requires another argument with a non-semantic case to be present as well, so that semantic case never marks the subject of an intransitive verb.

4.2.4 Government-Binding Theory

The two accounts I am aware of in Government-Binding Theory which include case marking and periphrastic causatives, namely Young-Se Kang (1986) and Young-joo Kim (1990a), take very similar positions on case. In both account, nominative case is assigned by default to all non-Case-marked NP's.

This position results in part from Kang's observation that there is no positive evidence that Agreement (AGR) in INFL assigns nominative Case in Korean. Subject honorification and plural copy constitute forms of subject agreement, but Kang considers the presence of nominative case when subjects are not honored or when they are singular, and hence show no agreeing honorification or plural markers, evidence that agreement does not correlate with nominative case. Kang further concurs with Whitman's (1984) position that INFL is not the head of S in Korean, because of the existence of clauses with nominative case but no tense marking, as well as the lack of evidence for INFL such as subject-auxiliary inversion. Without INFL or AGR to assign nominative Case, Kang assumes that nominative case is assigned by default.

Young-joo Kim (1990a) follows Kang's position. She notes that Myung-Yoon

Kang (1988:35) adopts a kind of hybrid case marking position between the standard Government-Binding assumptions and Y. Kang's position, assuming that AGR does assign nominative Case to the canonical subject position, but any other nominative NP's receive their case-marking by default.

Both Y. Kang and Y. Kim consider accusative a structural Case, and have similar formulations of where it occurs. For Kang, accusative case is assigned to NP's which are sisters of [$-$stative] V^0, while for Kim, accusative Case is assigned and realized obligatorily under government at S-structure by [+acc] V.

While Kang treats oblique NP's in Korean as bearing structural Case assigned by their postposition, Kim considers cases other than nominative and accusative to be instances of inherent Case. Kim follows Chomsky (1986) in assuming that inherent Case is assigned by a lexical category at D-structure to an NP which the category governs and theta-marks. At S-structure, the inherent Case is realized by a governing Case marker, consisting either of an inserted postposition or the Case-assigning category itself.

As in other analyses, dative case has certain specific properties in Kim's account. In what Kim terms "psych/existential/process verb constructions", where dative alternates with nominative case on certain arguments, dative case marking is just an inserted S-structure Case marker for the inherent oblique Case which the verbs assigned directly to these dative NP's at D-structure. All other postpositions in Korean theta-mark and assign inherent Case to their object NP's at D-structure, as well as being present as S-structure.

Despite their similar positions on Case marking, Kang and Kim adopt different analyses of the Korean periphrastic causative with an accusative causee. Kim follows more standard Government-Binding assumptions, and treats all periphrastic causatives as biclausal, with accusative causees resulting from Exceptional Case Marking into a lower clause. Kang (1986:74, fn.32) gives up the Projection Principle in order to derive the causee's accusative case from its sisterhood to a verbal complex of the lower verb and the causative auxiliary. This verbal complex is formed by Verb Raising in Kang's account, which violates the Projection Principle's requirement that

D-structure and S-structure cannot differ with respect to properties of theta-role assignment. In contrast to their differences regarding accusative causees, Kang and Kim both analyze periphrastic causatives with dative causees as involving a matrix object controlling a PRO lower subject in a lower clause.

4.2.5 Head-Driven Phrase Structure Grammar

In HPSG, various accounts have taken several different approaches to case marking, with an increasing tendency to analyze case as specified in the syntax rather than in the lexicon. In this section I will include accounts of languages other than Korean, because the case developments in HPSG as a whole are moving in a similar direction to HPSG accounts of Korean case, and I hope to fit my analysis into a future cross-linguistically valid HPSG theory of case.

The standard HPSG described in Pollard and Sag (1994) involves case as simply another feature which may be specified in subcategorization, similar to the category or form of a complement. Case is specified in the lexical entries of verbs, with nominative case specified for subjects of finite verbs.

Pollard and Sag assume that nonfinite verbs leave their subject argument unspecified for the CASE feature. This lack of specification is necessary in order to allow the SYNSEM value for the subject of a nonfinite verb to be identified with the SYNSEM value of a "Raised" object on the COMPS list of an object Raising verb. The object Raising verb can assign accusative case to the Raised object; because the verbal complement will be non-finite, its subject's SYNSEM value will be unspecified for case, and thus will unify with that of the Raised object.

Lexical specification of case forms the basis of Uda's (1992:44–49) approach to case marking, in an HPSG analysis of Japanese complex predicates. She uses case schemata to express generalizations within the lexicon concerning which arguments bear which case in Japanese, as seen in (322). These schemata are intended to apply in the order listed. The [CASE: +AC] specification in the first case schema indicates that a verb has accusative case available to assign.

(322) a. $V[V_{CASE}: +AC]: < NP_1, NP_2[acc], ... >$

b. V[V_{FORM}: FIN]: < NP_1[nom], ... >

c. Default: Mark a non-case-marked argument with [dat]

Thus, verbs which have accusative case to assign will assign accusative case to their direct object, i.e. the least oblique argument other than the subject. Finite verbs will assign nominative case to their subjects. All other arguments will be marked dative. Uda treats postpositions as occurring on adjuncts only.

In order to account for dative case marking on passive agents, which do not appear on the SUBCAT list, Uda (1992:180–182) modifies (322c) to the expanded version in (323). In this schema, syntactic arguments consist of those present on the SUBCAT list, while semantic arguments are those mentioned in the semantic CONTENT structure. Most NP's will be both syntactic and semantic arguments, but the definitions will diverge in certain instances.

(323) Default: Mark non-case-marked syntactic or semantic arguments with [dat]

Sag, Karttunen, and Goldberg (1992) in an analysis of Icelandic quirky case in Raising constructions assign accusative case in lexical entries as in standard HPSG, but they treat nominative case assignment for subjects as occurring through the grammar rule which introduces subjects.[11]

Pollard (1994) considers a wider notion of default case in his analysis of case in German passives, weighing the problem of introducing defaults into HPSG against the aversion of HPSG to tree-configurationally-based notions, which would be involved in specifying case by realization of signs on valence lists. Without adopting either of these approaches, Pollard argues for a notion of structural case, which is assigned lexically, and is further specified as nominative or accusative, depending on its syntactic context. This lexical underspecification of case allows Pollard to analyze a wide range

[11]More precisely, these case assignments are the "default" assignments, treated as the DCASE value, and distinct from the actual realized CASE, which will either be a quirky case or the DCASE value, depending on whether the verb has identified its subject's CASE value with its DCASE value. This notion of default does not conflict in any way with HPSG's declarative nature; these defaults are never overridden and they do not depend on advance specification of other values.

of *werden* passive facts with a single lexical entry for the German passive auxiliary *werden*.

E. Yoo (1993), following Pollard (1994), argues that in Korean both nominative case on subjects and accusative case on objects results from a Case Principle adding its specifications to NP's as they are satisfied from their valence lists. NP's which receive their full specifications from this Case Principle are specified lexically as bearing "structural" case; other NP's are assigned case lexically, such as the nominative objects of psych verbs.

(324) Yoo's Case Principle (for Korean):

An unresolved structural NP which is a daughter of a phrase α is [nom] is it is a SUBJ-DTR of α, and [acc] if it is a COMP-DTR of α.

For Yoo, the main support for syntactic case assignment in Korean comes from raising constructions such as (325), focussing on elements such as *Mary-lul* in this example.

(325)	John-i	Mary-**lul**	ttokttok.hay-ss-ta-ko	mit-nun-ta
	John-Nom	Mary-Acc	be.smart-Pst-Dec-Quot	believe-Pres-Dec
	'John believes Mary to have been smart.'			

It is logical to attribute the accusative case on *Mary-lul* to the matrix verb *mit-nun-ta* 'believe', but the lower verb *ttokttok.hay-ss-ta-ko* 'be.smart-Pst-Dec-Quot' is finite and thus would be assumed to assign nominative case to its subject, which is the raised object. The simplest analysis of raising is complete structure-sharing between the raised element and the non-realized lower subject, but this case conflict between lexically assigned cases would require a more complicated analysis of raising. Yoo argues instead that structural case should be assigned lexically, making the nominative and accusative compatible in their lexical specifications, with the further specification of the argument as accusative resulting from its syntactic combination with the matrix verb. C. Chung (1995:43–46) follows Yoo's case analysis in his account of Korean word order variation, calling lexical case appropriate for idiosyncratic case marking, as in psych verbs. Chung also notes that B. Ryu (1993) has proposed a similar account.

In an account of German case assignment which has been widely cited in HPSG work on case, Heinz and Matiasek (1994) take a position which is similar in many ways to the one which I will adopt. Citing Haider (1986) as the inspiration for many parts of their analysis, they distinguish between structural case, which alternates with the syntactic context, and lexical case, which remains the same in different syntactic environments. They give the following examples of different structural cases in different syntactic environments, showing how the subject of the verb *kommen* 'come' is nominative in the simple sentence in (326a), accusative as a causee in (326b), and genitive in the noun phrase in (326c).

(326) a. **Der** **Installateur** kommt
the-Nom plumber comes
'The plumber is coming.'

b. Der Mann läßt **den** **Installateur** kommen
the-Nom man lets the-Acc plumber come
'The man orders the plumber to come.

c. das Kommen **des** **Installateur-s**
the coming the-Gen plumber-Gen
'the coming of the plumber'

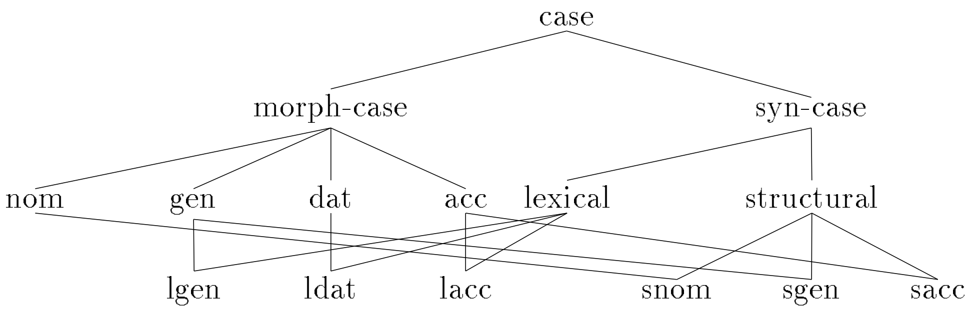
They illustrate lexical case with the dative case remaining the same as part of a sentence or as part of a noun phrase in the examples below.

(327) a. Der Mann ist **mir** nicht bekannt
the man is me-Dat not known
'The man is not known to me.'

b. der **mir** nicht bekannte Mann
the me-Dat not known man
'the man not known to me'

The cases they identify as structural cases consist of nominative, accusative, and genitive in nominal environments, while lexical cases include genitive, accusative, dative, and prepositions carrying an element of their subcategorizing verb's meaning, rather than their own meaning. Accusative and genitive are treated as both lexical and structural because in some environments, such as when functioning as the object of a preposition, there is no alternation possible and only a single case is acceptable. Heinz and Matiasek summarize this case classification in the sort lattice given in (328).

(328) **Heinz and Matiasek's Case Classification**



The distinction between structural case and lexical case is apparent in the lexical entries of verbs, where arguments are distinguished as either bearing structural case, or the particular lexical case indicated by the verb. For example, Heinz and Matiasek give the following SUBCAT lists for the two German verbs which they describe as both meaning 'help', but having different case marking patterns. *helfen* takes a subject with structural case and an object with dative case, while *unterstützen* assigns structural case to both its subject and its object.

(329) a. helfen < NP[*str*], NP[*dat*] >

b. unterstützen < NP[*str*], NP[*str*] >

The syntactic assignment of specific, complete structural case occurs through a single Case Principle:

(330) **Heinz and Matiasek's Case Principle**

In a *head-complement-structure* whose head has category:

verb[fin]	the external argument has a CASE value of *snom*
verb	the internal argument has a CASE value of *sacc*
noun	the internal argument has a CASE value of *sgen*

These are the only saturated or almost saturated *head-complement-structures* with structural arguments.

This Case Principle relies on the notions external and internal argument, where the external argument is an NP with structural case occurring first on the SUBCAT list (i.e. the subject), and the internal argument is an NP with structural case occurring second on the SUBCAT list (i.e. the direct object).

Recognizing an issue central to this thesis, Heinz and Matiasek (1994:210) point out that if an auxiliary has a nonfinite complement and inherits its arguments, then the complement could not lexically specify the case of its external argument since that case would vary depending on the finiteness of the inheriting auxiliary. The syntactic inheritance of arguments from one verb to another makes case alternations difficult to specify lexically.

Grover (1995) proposes that English case assignment is wholly structural, in the sense of Heinz and Matiasek (1994). Case is assigned in valence lists only through the combination of a head with an argument. Grover's Case Principle includes a separate clause to case-mark extracted NP's occurring as part of the INHER|SLASH set, rather than a valence list. She discusses various problems with lexical case assignment in English: the subjects of non-finite verbs would receive incorrect or conflicting cases; passivization of idioms and of object raising verbs would lose structure-sharing information in order to avoid case conflicts; and subject raising verbs which can take non-NP subjects would need two lexical entries, for case assigning and non-case assigning. Based on the simplicity of having only one method of case assignment, rather than both structural and lexical, Grover assumes that the instances in English which do not absolutely require structural case also involve structural case, rather than lexical case.

While the issue of how verbs determine which case is borne by each of their arguments is outside the scope of this thesis, I will briefly mention here developments in HPSG working toward that goal. Wechsler (1991) posits several semantic constraints on how semantic content may be expressed in the argument structure of a verb, and how specific semantic relations such as "recipient" may place their own restrictions on how the bearer of this role may be expressed as a complement, as in requiring a preposition or other indication of obliqueness. Davis (1996) develops an analysis in which lexical sorts called linking structures describe SUBCAT lists and certain semantic features such as the controllability and dynamism of the action. The linking structures provide the complete set of possible representations of the semantic properties with particular syntactic SUBCAT lists, determining the possible obliqueness ordering of arguments and preventing large numbers of semantic arguments from being realized as syntactic arguments of a single verb. All lexical entries for verbs belong to sorts determined by the linking structures, and share all information specified by the particular linking structure of that sort.

4.3 Theoretical Case Issues

Several issues run through various accounts of case marking reviewed here; in this section, I consider these ideas as a prelude to my own analysis. For much of this discussion, I will be describing my esthetic and theoretical reasons for leaving aside certain current ideas in favor of the positions I will adopt. I will concentrate mainly on issues surrounding default case and structural vs. inherent case, before touching briefly on several other issues.

4.3.1 Default Case

Default case assignment, involving a particular case marking which indicates the lack of any other specified case, forms a fundamental part of the accounts of case marking in several different grammatical frameworks. For Korean case marking, nominative case is the most common choice as the default case. Uda (1992) treats dative case as the default case in Japanese; however, this choice of default will only work if there are a small number of arguments on the COMPS list to receive default case. If the COMPS list also includes floating quantifiers, topics, focus noun phrases, and adjuncts, nominative, rather than dative, marks many of these additional items. In Korean, nominative not only marks these varied types of noun phrase, but also objects of psych verbs in addition to the expected nominative subjects. While there are dative subjects in Korean, dative does not appear to mark as broad a range of noun phrases, thus nominative appears to be the strongest candidate for the default case in a broad case-marking theory.[12]

In considering the possibility and desirability of relying on default case in this HPSG account, we need to consider two distinct questions. Technically, are default specifications possible in a unification-based syntax? Conceptually, is default case expressing generalizations we would like our analysis to include?

Concentrating on the technical aspects, the concept of default case interacts with the declarative vs. procedural nature of the framework, the distinction between syntax and the lexicon, and the idea of partial information specification in HPSG.

Default value specification loses much of its theoretical force in a declarative theory such as HPSG.[13] In a procedural theory, defaults apply when there can be no other

[12]After outlining his case typology in the Direct Linking framework (Kiparsky 1987), Smith (1992:201, fn. 6) speculates that Korean may have a mixed case system, with certain verb classes belonging to both Type 1, with an default accusative case, and other verb classes belonging to Type 2, with a default nominative case. For the languages Smith analyzes in depth, the default case is the only case which can occur on multiple arguments of the same verb, and the default case is likely to mark adverbials and other adjuncts. Because Korean can have multiple accusatives or multiple nominatives in a clause, and both of these cases can mark adverbials, Smith's carefully defined notion of default case within a systematic language typology does not explain the Korean facts. I have not seen any other suggestion that accusative should be considered the default case, or a default case, in Korean.

[13]In this section, I am describing a pure form of unification grammar, for the purpose of showing the nature of the conflict between defaults and unification. Several researchers (Kaplan 1987, Bouma 1990, Carpenter 1993, Copestake 1993, Russell et al. 1993) have worked to resolve this conflict, by methods such as at times allowing the order in which information is combined to determine which of several possible results is obtained; and using a distinction between strict information, which can conflict with other information, and default information, which can be overridden by conflicting information. This research has not eliminated the conflict between defaults and unification; Russell et al. (1992) state that their work "attempts to combine the advantages of unification and default inheritance, while minimizing the disadvantages arising from their interaction."

possible assignment; this lack of other assignment is only apparent after every possible assignment has occurred, such as after all other case marking rules have applied. In a declarative theory, a default value would have no sense of whether other rules may or may not apply to a particular item; instead, specifying a default corresponds to describing the logical complement of the totality of the other assignments. Thus, a default value could describe instances which did not belong to other classes, but there would need to be a description of this default class in order for it to apply to the relevant items.

The necessity for an identifiable point at which all non-default assignments will have happened highlights the distinction between syntax and the lexicon in HPSG. Because the lexicon is the repository of items to be used in syntax, we could define lexical items as having bar-level X^{-1} for purposes of ordinary lexical rules, with the application of default rules changing items into bar-level X^0 and thus making them eligible to occur in syntax.

The desirability of such default rules is a separate issue, but technically it is possible in a theory such as HPSG to have this kind of default rule, because of the certainty of the end of the relevant rule application and information unification at this point. Within syntax, we never have a similar endpoint, because of HPSG's emphasis on partial specification of information. More information may continue to be added at any point in the utterance, or even in the discourse. Because case is a system of agreement of information between nouns and verbs (or, more generally, complements and predicates), it necessarily involves syntactic information unification, and cannot easily be located at an endpoint such as exiting the lexicon.[14]

The partial specification of information which is unified in syntax produces a more specific problem for default assignments. Among the basic assumptions of HPSG is the idea that partial utterances and incomplete sentences will be explained by the grammar to the extent that a speaker of the language would understand them.

[14]Smith's (1992) use of default case as part of linking theory could fit within the lexicon in this way; default case in this sense is meaningful within a particular verb's argument structure. However, the inheritance of arguments from one verb to another through argument composition could present difficulties for the use of default case in linking theory in an HPSG account of Korean, since the full array of arguments would not be known in the lexicon.

Thus, if we had several noun phrases occurring with an unheard verb, due to a noisy environment or due to ellipsis or certain discourse situations, the premise of default case would be that if no other case were specified for these nouns, default case would be perfectly fine and would not interfere with the interpretations of these nouns. I suspect that this is not generally true. My theoretical intuitions are that any case specification is meaningful, and that the occurrence of default case on the nouns in this example would indeed influence the interpretation, and not simply signal the absence of any conflict with any other case specification.

Conceptually, it is important to determine whether default case assignment is expressing a useful and desirable theoretical idea, and to make this determination independently of the question of the compatibility of default assignments with HPSG. The basic idea behind default case is that there simply is no positive case specification for certain items, and these items are manifesting a lack of any specified case by bearing the default case marking.

If nominative case in Korean were expressed by a null morpheme, it would make a default case analysis somewhat more plausible. My sympathies lie with the view that nominative morphological case is chosen for a reason on every NP that bears it. The reasons for nominative case may not be ideally expressed in our analysis together in a single class; we may have separate reasons for nominative, such as agentivity, topichood, and subjecthood, which generally coincide. There may be a semantic basis for all Korean nominatives, from which certain nominatives will vary more than others. This common semantic basis for slightly different nominatives would resemble the shared core meaning from which polysemous items develop different, distinct meanings over time.

Thus, in my linguistic esthetics, the concept of default case is not particularly attractive, compared to a concept of semantic significance for all case marking. If we add this esthetic undesirability of default case to the technical problems of implementing default case in a declarative theory with unification of partially specified information in syntax, default case assignment has no strong basis for inclusion in my case marking analysis.

4.3.2 Structural and Inherent Case

A second major idea upon which several case marking accounts are founded is the division between two types of case marking. The distinction may be between structural and inherent case, as in the Government-Binding tradition and Gerdts' later Relational Grammar work, or between structural and lexical case, as in the HPSG accounts of Pollard (1994), E. Yoo (1993), Heinz and Matiasek (1994) and Grover (1995). The common idea in these distinctions is that cases such as nominative and accusative, which are strongly associated with the core grammatical relations of subject and object, are treated differently from cases such as instrumental or ablative, which are associated more with a particular semantics than a particular grammatical relation, and are expressed in many languages through prepositions or postpositions. I will adopt a form of this distinction in my own case marking analysis, using the terms grammatical and semantic case.

While Pollard and Sag (1994:19) characterize nominative and accusative as the only possible values for the CASE feature in the HPSG account of English, they (1994:18) mention the possibility of having different case values in other languages, as well as stating (1994:30) that the structural vs. inherent case distinction may be necessary in other languages. Heinz and Matiasek (1994) develop an HPSG analysis built on the similar distinction of structural vs. lexical case. While Pollard (1994) and E. Yoo (1993) share Heinz and Matiasek's conception of some nominatives and accusatives being assigned structurally, with others assigned lexically, my discussion here will concentrate on Heinz and Matiasek's account, because of their clear setting forth of a broad case theory, their influence on subsequent work in HPSG, and their similar concerns and motivations to this thesis.

In Heinz and Matiasek's account, the distinction involves the method of case *assignment* for a particular item, rather than a single, permanent classification of morphological cases. Thus, genitive and accusative case can each be assigned either structurally or lexically. The names chosen for the two kinds of case reflect this emphasis, in describing case which is assigned due to the syntactic constituent structure or case which is assigned in the lexicon.

Heinz and Matiasek's structural/lexical distinction differs from the more widely used structural/inherent distinction in focussing more closely on the method of case assignment, to the point where three out of the four German morphological cases fall in each of the structural and lexical classes. Heinz and Matiasek require the presence of a case alternation in each construction in order to justify structural case assignment in that construction. According to my linguistic esthetics, I would prefer a broader generalization, which classified morphological case markings into classes with less overlap and did not require detailed evidence from case alternations in order to extend the treatment of a particular case from several constructions to the language as a whole. It seems that this kind of broader generalization could have more theoretical force, and lead to more falsifiable predictions. The broadest possible generalization would universally characterize certain cases as lexical and others as structural, but given the range of cross-linguistic variation in case marking, the correct level of generalization may be at the level of each language. It may be that certain languages may assign all case lexically, while others assign case purely structurally, as Grover (1995) proposes for English. In a language with rich morphological case beyond simple nominative, accusative, and dative, purely structural case may be less likely. Heinz and Matiasek generalize the lexical vs. structural case distinction at the lower level of the construction, rather than at the language level or the cross-linguistic case classification level.

A specific area in which the Heinz and Matiasek approach to structural vs. lexical case may have difficulty accounting for the Korean data is in the phenomenon of Case Stacking, in which several case markers co-occur. In the distinction drawn by Gerdts between the S-cases of nominative and accusative and the I-cases including dative and instrumental, Case Stacking can be described as involving the co-occurrence of no more than one S-case, and any number of semantically compatible I-cases. Because Heinz and Matiasek distinguish the method of case assignment in constructions rather than particular case markings, their distinction would not explain the difference of behavior of different cases in Korean. Furthermore, Case Stacking would require changing the assumption that a lexical case specification prevents a structural case specification on the same NP, while limiting the Case Stacking possibilities to the correct subset of verbs.

4.3.3 Other Case Issues

The remaining issues in the analysis of case marking include case vs. category distinctions, the status of dative case, verb finiteness, the role of grammatical relations and obliqueness, and linking theory.

The distinctions between structural and inherent case, structural and lexical case, and grammatical and semantic case could be seen in many examples as separating NP's from PP's, rather than two kinds of case borne by NP's. In O'Grady's (1991) account, the distinction between NP and PP allows O'Grady to limit his case marking analysis to NP's only. However, as I will discuss below, I believe that Korean provides us no outside evidence for a category difference between N and P, and thus we do need to make the distinction within our analysis of case, rather than in category. Treating the entire class of case-marked phrases together fits within the usual descriptive linguistic use of the term "case" to describe a wide range of case markings.

Dative case has had a special status in many accounts, because dative phrases share characteristics with both NP's and PP's of other languages, and dative case has some highly grammaticalized uses and other more semantically transparent uses. In my analysis, as described below, dative is a semantic case. Thus, any analysis which analyzed dative phrases as NP's would not be making an equivalent distinction in the categories NP vs. PP as I make between grammatical and semantic case. The special characteristics of dative case make the case/category distinction harder to draw.

In Government-Binding accounts, the fact that Korean case marking does not rely in any way upon the finiteness of the verb results in major revisions of the theory (Y. Lee 1990), due to the central role of AGReement in INFLection in case assignment. For HPSG, the finiteness of the verb is not accorded the same central role, thus Korean can differ from languages such as English in this respect without requiring major theoretical adaptations.

The early Relational Grammar approach used case as a good, but defeasible, indicator of grammatical relation. The uniqueness of each grammatical relation made case marking function as a check on possible structures, as a phrase with a particular case marking had to either bear a particular Grammatical Relation or have borne that

Grammatical Relation at an earlier stratum. In the analysis I develop, the division between the SUBJ and COMPS lists, which can be seen as derived from the obliqueness ordering of the arguments, plays a role in determining the appropriate case for an argument. The obliqueness of arguments on the COMPS list is not directly relevant in the manifestation of particular case markings in my account. The fact that I do not require arguments to be satisfied in order of increasing obliqueness, as described by the Valence Principle, parallels the compromise O'Grady (1991) must make to maintain his categorial approach. O'Grady takes the position that case is assigned strictly according to the category of the phrase with which the NP combines, such as combining with a VP or a V, and thus he must allow discontinuous constituents in order to account for Korean sentences with accusative NP's preceding nominative NP's.

Obliqueness of arguments may be more closely related to case marking when the analysis of case includes the lexical linking of semantic roles to syntactic arguments. My analysis does not include linking theory, as it does not closely interact with the causatives under study, but the eventual, complete HPSG case theory will include these aspects. K. Hong (1991b) uses the same concepts to explain the mapping of semantic arguments from an event into particular grammatical relations as she does to explain case marking. This is an interesting direction, as it constrains the kinds of semantics-to-syntax influences into a narrow range. Whether this narrow range will be adequate for this purpose or not, linking theory and the syntax-semantics interface will be interesting areas to watch for further developments.

4.4 Theoretical Case Issues in HPSG

In this section, I consider two issues of case which are more closely intertwined with theoretical aspects of HPSG than those arising from the survey of Korean case in various frameworks, and which I will treat in more depth than the preceding issues. The first issue, that of grammatical and semantic case in the lexicon, is related to the structural vs. inherent case discussion of the last section, but in this section I deal more narrowly with the Korean facts and how they reflect the distinction between the two kinds of case. The second issue, about the specification of grammatical case in the syntax rather than in the lexicon, discusses the Korean case alternation facts supporting syntactic specification. Resolving these two issues lays the foundation for my own analysis of Korean case in the next section.

4.4.1 Grammatical and Semantic Case in the Lexicon

As in many accounts distinguishing structural and inherent case, I will argue that Korean case is divided into two classes, with nominative and accusative in one class, and the other cases in the other class. This particular division is reminiscent of the categorial distinction between NP's and PP's in many languages, but as I argued in Section 4.1.6.1, Korean has only NP's and no PP's. These two classes of case will be represented formally in my analysis by two distinct types in the type hierarchy.

I term the classes of Korean case markers grammatical and semantic case, rather than structural and inherent, or structural and lexical, in order to examine independently the issues of whether cases have characteristics separating them into distinct groups and of what part of the grammar specifies case marking. I also find that the term grammatical case, rather than structural case, emphasizes the interaction of nominative and accusative with grammatical constructions and grammatical principles, and avoids any confusion about "structural" indicating constituent structure, rather than argument structure or other possible structures. The term semantic case, rather than lexical or inherent case, emphasizes the widespread characteristic among these cases that semantics alone, rather than syntactic principles, determines their applicability.

In this section, I will discuss certain properties distinguishing nominative and accusative NP's from semantic case-marked NP's and how some of these properties are attributable to this theoretical distinction, while others follow from other areas of the grammar. I will then give my HPSG representation of grammatically case-marked NP's in the lexicon, and delay giving the representation of semantically case-marked NP's until the section giving the context for my account of semantic case, where the NP signs will be presented in conjunction with the signs for verbs which they semantically combine with.

4.4.1.1 Distinguishing Grammatical Case from Semantic Case

There are several morphological properties distinguishing Nominative and Accusative case from semantic cases which are not necessarily related to the grammatical nature of the case marking involved, though the grammatical nature of the case markers may be one of several factors such as frequency of occurrence or functional load contributing to a cross-linguistic tendency in this direction. Furthermore, the occurrence of morphological differences between different classes of morphemes is natural, even if the specific differences are not theoretically necessary.

Two of these properties were mentioned in Section 4.1.6.1 dealing with basic case marking. Nominative and Accusative case markers occur in a more peripheral morphological position on nouns than semantic case markers do. Also, in colloquial speech, there are zero variants of nominative and accusative, and not of most semantic case markers.[15]

[15]Y. Cho and Sells (1995:140) cite nominative, accusative and directive ("directional" in my terminology) as the cases which can correspond to zero marking, and give the example in (i).

(i) Pwusan ka-yo
Pusan go-End
'We go to Pusan.'

Another example which could involve deletion of the semantic directional case marker -*ey* is given in (ii-b).

(ii) a. Ai-ka hakkyo**-ey** ka-ss-ta
child-Nom school**-Dir** go-Pst-Dec
'The child went to school.'

b. Ai-ka hakkyo ka-ss-ta
child-Nom school go-Pst-Dec
'The child went to school.'

An interesting fact related to the verb *ka-ta* 'go', which appears to permit zero directional case markers in these examples, is that accusative-marked path arguments with *ka-ta* do not allow zero case marking, as seen in the example below.

(iii) a. Kil-ul ka-yo
path-Acc go-End
We walk (along) the path.

Another such morphological property is that nominative and accusative case do not co-occur with suffixes such as the topic marker *-nun* or the emphasis markers *-to* or *-cochato*, while semantic case markers do. Thus, *chayk-un* 'book-Top' is a possible subject NP, while **chayk-i-nun* 'book-Nom-Top' or **chayk-un-i* 'book-Top-Nom' are completely impossible. In contrast, the topic marker can co-occur with a semantic case marker such as *eykeyse* 'from', giving noun like *haksayng-eykeyse-nun* 'student-from-Top'.

While I will attribute the previous properties to chance characteristics of the Korean lexicon, the next properties setting apart Nominative and Accusative case are more closely related to the difference between specifications of the grammatical

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b. *Kil ka-yo
path-Acc go-End
We walk (along) the path.

Added to the fact that *-ey* is not usually omissible in most sentences without the verb *ka-ta*, these examples point out complexity in the issue of zero case marking ripe for further research.

There are also several instances in which the dative semantic case marker *-eykey* appears to be omissible; however, these omissions can be analyzed as instances of omitted accusative case because they only occur on NP's which can occur with either dative or accusative case. For example, (ii-a) can have either dative or accusative case on the recipient of the teaching, and (ii-b) with no case marking on the corresponding recipient is grammatical.

(iv) a. Sensayngnim-kkeyse ai-**eykey/-lul** yenge-lul kaluchi-si-ess-eyo
teacher-HNom child-**Dat/-Acc** English-Acc teach-SHon-Pst-End
'The teacher taught the child English.'

b. Sensayngnim-kkeyse ai yenge-lul kaluchi-si-ess-eyo
teacher-HNom child English-Acc teach-SHon-Pst-End
'The teacher taught the child English.'

However, if a verb does not permit accusative case on its recipient argument, then the recipient cannot appear without a case marker. This is illustrated below in (iii).

(iii) a. Sensayngnim-kkeyse ai-**eykey/*-lul** kong-ul tenci-si-ess-eyo
teacher-HNom child-**Dat/*-Acc** ball-Acc throw-SHon-Pst-End
'The teacher threw the child a ball.'

b. *Sensayngnim-kkeyse ai kong-ul tenci-si-ess-eyo
teacher-HNom child ball-Acc throw-SHon-Pst-End
'The teacher threw the child a ball.'

I am indebted to Young-mee Yu Cho (p.c.) for the observations of this footnote, though I remain responsible for any errors in their interpretation or presentation.

CASE feature and other kinds of linguistic information.

As briefly mentioned in the basic case facts in Section 4.1.8, Case Stacking in Korean allows Nominative or Accusative case marking to co-occur with semantic case marking on the same noun, giving forms like *haksayng-eykey-ka* 'student-Dat-Nom' and *haksayng-eykey-lul* 'student-Dat-Acc'. Several semantic case markers can also occur together, in examples like *Yengswu-eykey-lo-wa* 'Yengswu-Dat-toward-Com' (Gerdts and Youn 1989:27). However, Nominative and Accusative can never co-occur on the same noun, even in sentences involving constructions such as Subject-to-Object Raising, where both nominative and accusative would be motivated. (331) shows that both nominative and accusative case markers are possible on the same NP in the two sentences. In (332), we see that combining both nominative and accusative on the same noun is impossible, even in this motivated environment. Both of the words **haksayng-ul-i* 'student-Acc-Nom' and **haksayng-i-lul* 'student-Nom-Acc' are impossible morpheme combinations in any context.

(331) a. Na-nun ku haksayng-**i** chencay-i-lako mit-ess-ta
I-Top that student-**Nom** genius-be-Cmp believe-Pst-Dec
'I believed the student was a genius.'

b. Na-nun ku haksayng-**ul** chencay-i-lako mit-ess-ta
I-Top that student-**Acc** genius-be-Cmp believe-Pst-Dec
'I believed the student was a genius.'

(332) a. *Na-nun ku haksayng-**i-lul** chencay-i-lako mit-ess-ta
I-Top that student-**Nom-Acc** genius-be-Cmp believe-Pst-Dec
'I believed the student was a genius.'

b. *Na-nun ku haksayng-**ul-i** chencay-i-lako mit-ess-ta
I-Top that student-**Acc-Nom** genius-be-Cmp believe-Pst-Dec
'I believed the student was a genius.'

A parallel kind of example is found in duration and frequency adverbials, which optionally bear Nominative or Accusative case. For example, the duration adverbial *myech-sikan-tongan* 'several-hours-during' can occur with nominative case, as in *myech-sikan-tongan-i* 'several-hours-during-Nom' or with accusative case, as in *myech-sikan-tongan-ul* 'several-hours-during-Acc'.

4.4.1.2 Lexical Entries for Nouns with Grammatical Case

These possibilities follow from a distinction between grammatical case, a type for the value of the CASE feature which limits its values to Nominative or Accusative, and semantic case, which adds semantic information to a noun, without preventing the addition of other semantic information. In other words, the lexical addition of nominative or accusative case to a noun will add nominative or accusative as the value of the CASE feature, and these cases belong to the grammatical type. Nominative and Accusative are alternate possibilities for the case feature, and they both cannot be simultaneously values for this feature, thus they will never co-occur on the same noun. In contrast, the lexical addition of a semantic case to a noun will not add any specific information to the CASE feature, not even a specification of semantic type.[16] The only change to the noun will be the addition of semantic information indicating how that noun can fit into a verb's CONTENT. Semantic information is not limited to a small number of specific possibilities, as would occur in named cases, and many semantic properties denoted by case markers will be able to combine with each other on the same noun to describe a semantically complex situation. The independence of semantic elaboration of a noun through semantic case marking from the CASE feature means that grammatical case can co-occur with semantic case on a noun, with grammatical case specifying CASE feature information and the semantic case specifying semantic CONTENT information.

Lexical constraints are responsible for limiting these case stacked words to certain registers and certain case combinations. Variation between individuals on permissible combinations can be attributed to variation between their lexicons. Because the semantic information is specified separately from the grammatical CASE information,

[16]The specification of semantic type will be discussed in my analysis of verbs assigning case. However, it is possible that speakers of a dialect which does not allow case stacking will have the CASE feature specified with semantic type at this point. I will discuss these dialect variation issues in the following section.

extra grammatical information such as optional nominative and accusative case is possible on words which lexically permit it, such as duration and frequency adverbials.

The grammatical case information will be specified as the CASE feature in lexical entries of case-marked nouns, as well as in entries for the case-marking suffixes themselves. Sample entries of case-marked nouns are given below in (333) and (334). CASE will be part of the CAT|HEAD information, as it is a property of the entire noun phrase with all modifiers, as well as of the case-marked noun. The fact that a noun may be nominative or accusative is not registered in the semantic CONTENT.

(333)

$$\begin{bmatrix} \text{PHON } \langle \text{ cha-lul } \rangle \\ \text{CAT|HEAD } \begin{bmatrix} \textit{noun} \\ \text{CASE Acc} \end{bmatrix} \\ \text{CONTENT } \begin{bmatrix} \text{INDEX } \boxed{1} \\ \text{RESTRICTION } \left\{ \begin{bmatrix} \text{RELN car} \\ \text{CAR } \boxed{1} \end{bmatrix} \right\} \end{bmatrix} \end{bmatrix}$$

(334)

$$\begin{bmatrix} \text{PHON } \langle \text{ cha-ka } \rangle \\ \text{CAT|HEAD } \begin{bmatrix} \textit{noun} \\ \text{CASE Nom} \end{bmatrix} \\ \text{CONTENT } \begin{bmatrix} \text{INDEX } \boxed{1} \\ \text{RESTRICTION } \left\{ \begin{bmatrix} \text{RELN car} \\ \text{CAR } \boxed{1} \end{bmatrix} \right\} \end{bmatrix} \end{bmatrix}$$

Lexical entries for case-marked nouns like the ones above result from the morphological combination of noun stems with case suffixes. Below are the lexical entries for the case suffixes *-lul* and *-ka*. They include a crude approximation of the phonological requirements of these particular case markers for vowel-final noun stems.[17]

[17] I am departing from usual HPSG practice here in presenting a complex PHON feature, including a PHFORM (phonological form) value for the phonological realization of the suffix and a PHCOMPS feature for the phonological subcategorization of the suffix, along the lines of Inkelas (1989). I use the feature FINAL within that PHCOMPS value to indicate that the suffix phonologically subcategorizes

(335)

$$\begin{bmatrix} \textsc{phon} & \begin{bmatrix} \textsc{phform} & \text{-lul} \\ \textsc{phcomps}|\textsc{final} & \text{vowel} \end{bmatrix} \\ \textsc{cat} & \begin{bmatrix} \textsc{head} & \begin{bmatrix} \textit{noun} \\ \textsc{case} & \text{Acc} \end{bmatrix} \\ \textsc{comps} & \left\langle \begin{bmatrix} \textsc{head} & [\textit{noun}] \\ \textsc{nform} & \text{stem} \\ \textsc{index} & \boxed{1} \end{bmatrix} \right\rangle \end{bmatrix} \\ \textsc{content} & \begin{bmatrix} \textsc{index} & \boxed{1} \end{bmatrix} \end{bmatrix}$$

(336)

$$\begin{bmatrix} \textsc{phon} & \begin{bmatrix} \textsc{phform} & \text{-ka} \\ \textsc{phcomps}|\textsc{final} & \text{vowel} \end{bmatrix} \\ \textsc{cat} & \begin{bmatrix} \textsc{head} & \begin{bmatrix} \textit{noun} \\ \textsc{case} & \text{Nom} \end{bmatrix} \\ \textsc{comps} & \left\langle \begin{bmatrix} \textsc{head} & [\textit{noun}] \\ \textsc{nform} & \text{stem} \\ \textsc{index} & \boxed{1} \end{bmatrix} \right\rangle \end{bmatrix} \\ \textsc{content} & \begin{bmatrix} \textsc{index} & \boxed{1} \end{bmatrix} \end{bmatrix}$$

The lexical idiosyncrasies discussed in Section 4.1.1.2, such as the form *nay-ka* 'I-Nom', rather than **na-ka*, can be handled by additional lexical entries for the optional contractions of noun and case marker, and with the usual sorts of morphological principles which restrict languages to only the actual words of the language. It is a

---

for a particular final sound of the noun, a vowel in the case of *-lul* and a consonant in the case of *-ka*. It would not be usual HPSG practice to include this kind of phonological subcategorization in the COMPS list within the SYNSEM value of the suffix, because items on the COMPS list are SYNSEM values which do not include phonological information. It would be possible to assign nouns a SYNSEM feature indicating this phonological property, perhaps as part of the NFORM feature, but I find it preferable to separate out purely phonological issues and to locate them within the PHON value. Obviously, these particular features within the complex PHON value are motivated by the issues I face here, and they would most likely be revised in a serious development of a complex PHON value.

normal linguistic situation for not all combinations of all affixes with all roots to be possible, even when there is no semantic reason against the combination. I will not address the account of this general morphological problem here.

An alternate hypothesis for this particular idiosyncrasy which could be stated easily within HPSG is that the stem *na* says that its CASE value is "not Nom", while the stem *nay* says that its CASE value is "Nom". These stems would be unusual in having case specification. This specification would allow only the appropriate case markings to unify with them. This hypothesis could have some difficulty with the "not Nom" stem *na* suffixed with the topic marker *-nun* to give *na-nun* when this NP functions as subject, and similarly with *na* occurring as a nominative with omitted case marking in colloquial speech. Because of these difficulties with the alternate hypothesis, I will maintain the position that the idiosyncrasies are located in the listing of possible affix combinations in the lexicon, rather than resulting from specific properties in the lexical entries for those noun stems.

Thus, I have concluded that the grammatical cases of nominative and accusative are distinguished from semantic cases by several properties within Korean grammar, and that grammatical case suffixes lexically add a specification to a noun's CASE feature, while semantic case suffixes do not specify the noun's CASE feature, instead they add information to semantic CONTENT.

4.4.2 Grammatical Case: Syntactic, not Lexical, Specification

Locating the analysis of case in the lexicon or in the syntax is important not only for providing a complete, testable analysis, but also for questions of the theoretical nature of case, of the lexicon, and of syntax. Lexicalist Theories such HPSG or LFG (Lexical-Functional Grammar) place great importance on the distinctness of the lexicon from syntax. This value is reflected in taking morphological and phonological data to be valid sources of evidence to distinguish lexical items from syntactic phrases or collocations, and also in greatly prizing monotonicity in syntax, as discussed in Section 3.1.

In order to observe monotonicity, early versions of lexicalist theories assumed that relation-changing operations, such as passives, causatives, and applicatives, must be purely lexical. However, phonological, morphological and syntactic data showed that, while lexical accounts were fully adequate for many relation-changing constructions, certain languages had similar constructions which had to be analyzed as occurring in the syntax. For example, Alsina (1993) analyzes the periphrastic Catalan causatives as similar to the lexical Bantu causatives in resulting from the combination of a partially specified causative predicate with a caused predicate. Thus, the challenge for lexicalist theories is to account for phenomena in the correct module of grammar, without violating fundamental tenets such as syntactic modularity. For syntactic causative formation, careful partial specification of lexical items which combine syntactically with other lexical items to form complex constructions appears to meet the challenge. My account of grammatical case follows a similar strategy to allow syntactic information to complete the underspecified case values of lexical items.

In this section, I will look at the evidence arguing that Korean case marking cannot be fully lexical, but instead must rely on syntactic specification of lexically underspecified items. This evidence comes from case alternations in three constructions: passive, psych verbs, and duration adverbials.

Lexical specification of case would appear to be the natural default choice of analysis in HPSG, based on typical argument-head interactions. If the verb specified the grammatical case of its arguments, without any other part of syntax contributing to the case specification, then the grammatical case would resemble other subcategorized information in constraining the arguments which could satisfy the items on the valence lists of the verbs. This is in the style of Pollard and Sag (1994). A lexical item, under these assumptions, for the verb *ilk-ta* 'read' is given below.

(337) Hypothetical Lexical Case Assignment

$$\left[\begin{array}{ll} \text{PHON} & \langle \text{ ilk-ta } \rangle \\ \text{CAT} & \left[\begin{array}{ll} \text{SUBJ} & \left\langle \left[\begin{array}{l} \text{HEAD } [\textit{noun}] \\ \text{CASE Nom} \\ \text{INDEX } \boxed{1} \end{array}\right] \right\rangle \\ \text{COMPS} & \left\langle \left[\begin{array}{l} \text{HEAD } [\textit{noun}] \\ \text{CASE Acc} \\ \text{INDEX } \boxed{2} \end{array}\right] \right\rangle \end{array}\right] \\ \text{CONTENT} & \left[\begin{array}{l} \text{RELN read} \\ \text{READER } \boxed{1} \\ \text{READ-OBJ } \boxed{2} \end{array}\right] \end{array}\right]$$

A reason for lexical case marking, with verbs completely responsible for specifying grammatical case, is that any variation in case assignment can be attributed to either idiosyncratic or regular lexical information, as best fits the circumstances. The lexicon is the most natural place to describe idiosyncratic information. Grammar schemata would be less expected to be sensitive to differences between classes of verbs, something which would receive very natural treatment under type inheritance in the lexicon. All the verbs of a particular type can inherit their case marking, which is specified only once. The trend within the theory is toward simpler phrase structure schemata, so that would weigh against including case information as part of the schemata so that case marking could occur in the syntax.

However, if the different case marking seen in different sentences is attributable to purely syntactic facts, rather than to lexical facts such as verb class, then syntactic case marking will better capture these distinctions. A reason for syntactic case marking, with grammar schemata assigning case, or participating in case assignment, is to account for different cases assigned in different syntactic configurations with the same lexical items. It may be possible to encode these different configurations into homophonous lexical items in order to preserve a purely lexical account; however, this indirect approach introduces unnecessary complexity into the account, and reduces the theoretical validity of the distinction between syntax and the lexicon. Instead, it is preferable to say that the grammar schemata, in matching the information determining which items may come together to form a particular kind of phrase, also match case information. Verbs would be underspecified for this information, while NP's, in most circumstances, would be fully specified and either unify with the correct case in the schemata or fail to yield a grammatical sentence.

Korean has several of these case alternations where different syntactic structures determine different case possibilities for the same lexical items, and thus I will adopt the position that grammar schemata specify the case borne by arguments of verbs, at the point of satisfaction of these arguments from the verbs' valence lists. My data comes from the alternations of Nominative and Accusative case in Passive, in Psych verbs, and on Duration Adverbials.

4.4.2.1 Nominative/Accusative Alternations in Passive

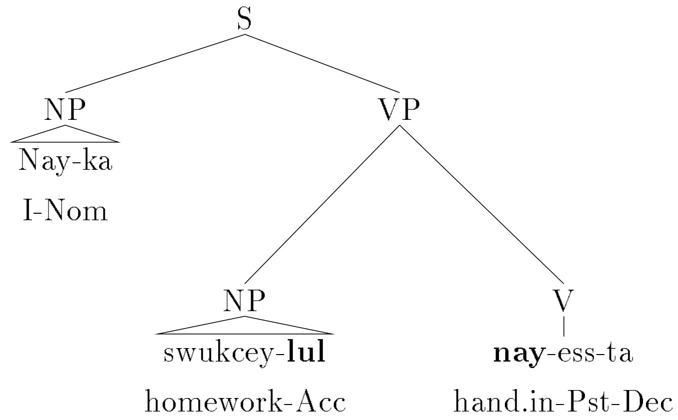
In the productive *ci-* passive, we see an alternation in case between the same semantic argument, the theme *swukcey* 'homework' in (338), depending on whether it occurs with the plain active verb *nay* 'hand in' or the passive complex verb *nay-e ci*.

(338) a. Nay-ka swukcey-**lul** nay-ess-ta
I-Nom homework-**Acc** hand.in-Pst-Dec
'I handed in the homework.'

b. Swukcey-**ka** nay-e ci-ess-ta
homework-**Nom** hand.in-Cmp PasAux-Pst-Dec
'I handed in the homework.'

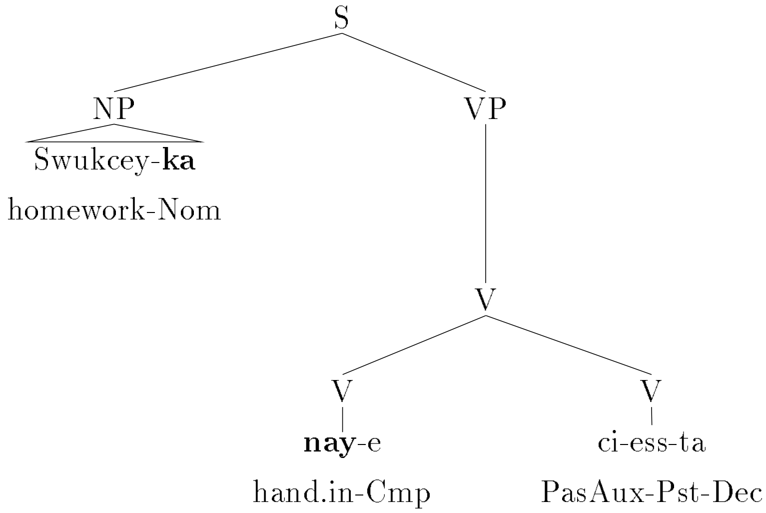
In (339), the object *swukcey-lul* 'homework-Acc' is sister to an agentive head and gets the accusative case *-lul*.

(339)



In (340), the passive subject is sister to a non-agentive head, and gets the nominative case -*ka*.

(340)



I argue in Chapter 5 that a verb form such as *nay-e* is lexically passivized, rather than attributing the effects of passive to argument composition with the passive auxiliary. With the effects of passivization occurring within the lexicon, the passive examples alone would not be sufficient evidence for my theoretical position on case marking based on syntactic case alternations. However, the fact that these examples neatly fall out from the syntactic treatment of case, allowing the account to avoid adding extra information specifically to the Passive rule, is positive support for my position.

It would be possible in a fully lexical case marking system for the passive auxiliary to merely unify the semantic indices of the passive verb's subject and active verb's object, instead of their full grammatical specifications, as in the lexical entry for *ci-ta* given below.[18]

(341) Hypothetical Passive with Lexical Case

$$\begin{bmatrix} \textsc{phon}\ \langle \text{ ci-ta } \rangle \\ \textsc{cat} \begin{bmatrix} \textsc{subj} \left\langle \textsc{np}[\text{ Nom}]_{\boxed{1}} \right\rangle \\ \textsc{comps} \left\langle \begin{bmatrix} \textsc{cat} \begin{bmatrix} \textsc{head} \begin{bmatrix} \textit{verb} \end{bmatrix} \\ \textsc{subj} \left\langle \textsc{np}[\text{ Nom}]_{\boxed{2}} \right\rangle \\ \textsc{comps} \left\langle \textsc{np}[\text{ Acc}]_{\boxed{1}} \right\rangle \oplus \text{ L} \end{bmatrix} \\ \textsc{content}\ \boxed{3} \end{bmatrix} \right\rangle \oplus \text{ L} \end{bmatrix} \\ \textsc{content}\ \boxed{3} \end{bmatrix}$$

If we only unified semantic indices for passive, then we would have to either analyze passive differently from the other argument composition verbs such as *siph-ta* 'want' and *po-ta* 'seem', where no cases are different in their lower and higher verb assignments, or we have to repeat the same case information in both higher and lower verbs. The lexical *-hi* passive also changes grammatical relations, and it also benefits from not having to delete or ignore the original case marking. This simplifies our analysis of morphology.

4.4.2.2 Nominative/Accusative Alternations in Psych Verbs

The second example of case alternation involves Psych verbs. This is a class of verbs which have a monomorphemic verb stem, then a corresponding variant with a verbal complex formed with *ha*. The shorter, plain verb is stative, and can be used for describing one's own emotions or asking questions of others. The complex *ha-* variant

[18] Grover (1995:38–39) claims this lexical case marking alternative is inadequate for English passive, due to the need to maintain the relation between Raising controllers and controllees, as well as idiomatic readings under passivization. I have not examined these issues in Korean passives.

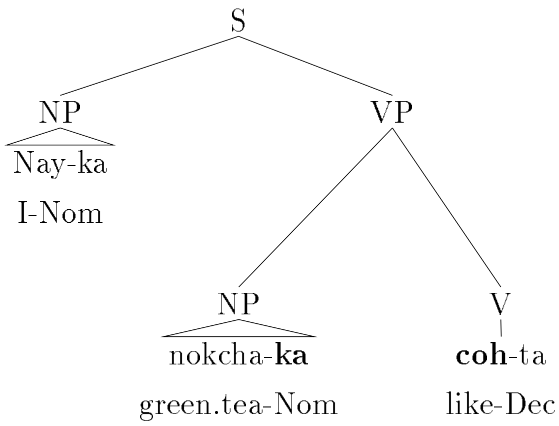
is non-stative, and can be used for third-person subjects, and has more of a meaning of showing signs of the emotion rather than actually feeling it. (Y. Cho, class lectures).

(342) a. Na-nun nokcha-**ka** **coh**-ta
I-Top green.tea-**Nom** like-Dec
'I like green tea.'

b. Na-nun nokcha-**lul** **coh**-a ha-n-ta
I-Top green.tea-**Acc** like-Cmp do-Pres-Dec
'I like green tea.'

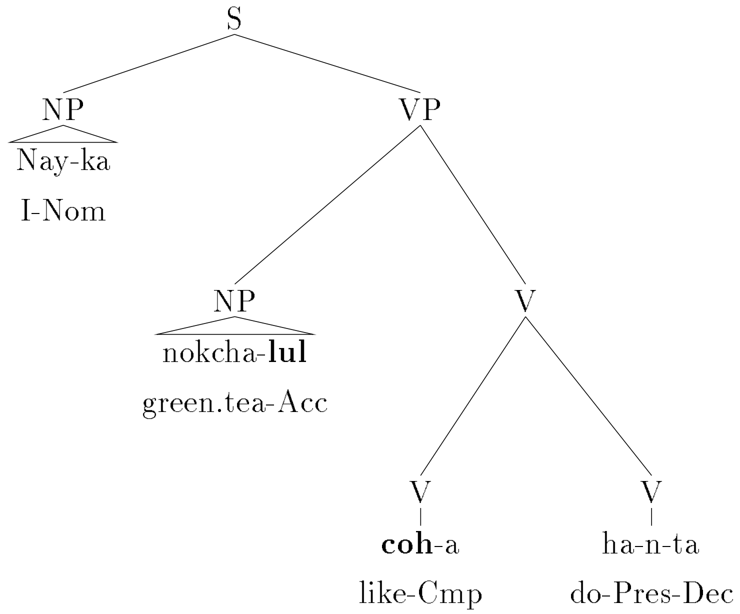
In (343), *nokcha-ka* 'green tea-Nom' is sister to a non-agentive head and bears the nominative case *-ka*.

(343)



In (344), *nokcha-lul* 'green tea-Acc' is sister to an agentive head and bears the accusative case *-lul*.

(344)



As in the passive example, it would be possible to account for this case alternation lexically. Here we would need two lexical entries for similar verbs which would be homophonous when the stative *coh-* 'like' occurred in the *-a* suffix form that the non-stative *coh-* like will always appear in, due to being a complement of *ha-ta*. A possible entry for the stative *coh-* with lexical case marking is given below in (345), with the corresponding non-stative *coh-* with lexical case marking given in (346).

(345) Hypothetical Stative Psych Verb with Lexical Case

$$\begin{bmatrix} \text{PHON} \ \langle \text{ coh-a } \rangle \\ \text{CAT} \begin{bmatrix} \text{SUBJ} \left\langle \text{NP[Nom]}_{\boxed{1}} \right\rangle \\ \text{COMPS} \left\langle \text{NP[Nom]}_{\boxed{2}} \right\rangle \\ \text{STATIVE} + \end{bmatrix} \\ \text{CONTENT} \begin{bmatrix} \text{RELN like} \\ \text{LIKER } \boxed{1} \\ \text{LIKED } \boxed{2} \end{bmatrix} \end{bmatrix}$$

(346) Hypothetical Non-Stative Psych Verb with Lexical Case

$$\begin{bmatrix} \text{PHON} \ \langle \text{ coh-a } \rangle \\ \text{CAT} \begin{bmatrix} \text{SUBJ} \left\langle \text{NP[Nom]}_{\boxed{1}} \right\rangle \\ \text{COMPS} \left\langle \text{NP[Acc]}_{\boxed{2}} \right\rangle \\ \text{STATIVE} \ - \end{bmatrix} \\ \text{CONTENT} \begin{bmatrix} \text{RELN like} \\ \text{LIKER } \boxed{1} \\ \text{LIKED } \boxed{2} \end{bmatrix} \end{bmatrix}$$

The two entries above would be necessary to account for case marking patterns of psych verbs lexically, while a schema-based case marking approach would account for this data with a single entry for each psych verb and no additional specifications.

4.4.2.3 Nominative/Accusative Alternations on Duration Adverbials

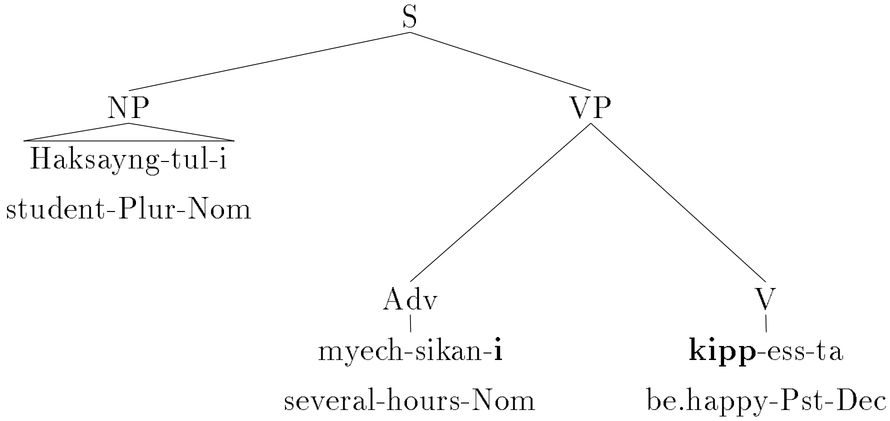
The third class of case alternation is that of the optional case marking on duration adverbials. Instead of corresponding to the lexical specifications of the verb they modify, duration adverbials in causative sentences take only optional accusative marking, and not nominative marking. These facts were discussed in Chapter 2 as evidence for the constituent structure of the causative.

(347) Haksayng-tul-i myech-sikan-**i** **kipp**-ess-ta
Student-Plur-Nom several-hour-**Nom** be.happy-Pst-Dec
'The students were happy for several hours.'

(348) Sensayngnim-kkeyse hyukang ha-si-n sasil-i haksayng-tul-ul
Teacher-HNom skip.lecture do-Hon-Pst fact-Nom student-Plur-Acc
myech-sikan-**ul** [**kippu-key** hay-ss-ta]
several-hour-**Acc** be.happy-Adv do-Pst-Dec
'The fact that the teacher skipped lecture made the students happy for several hours.'

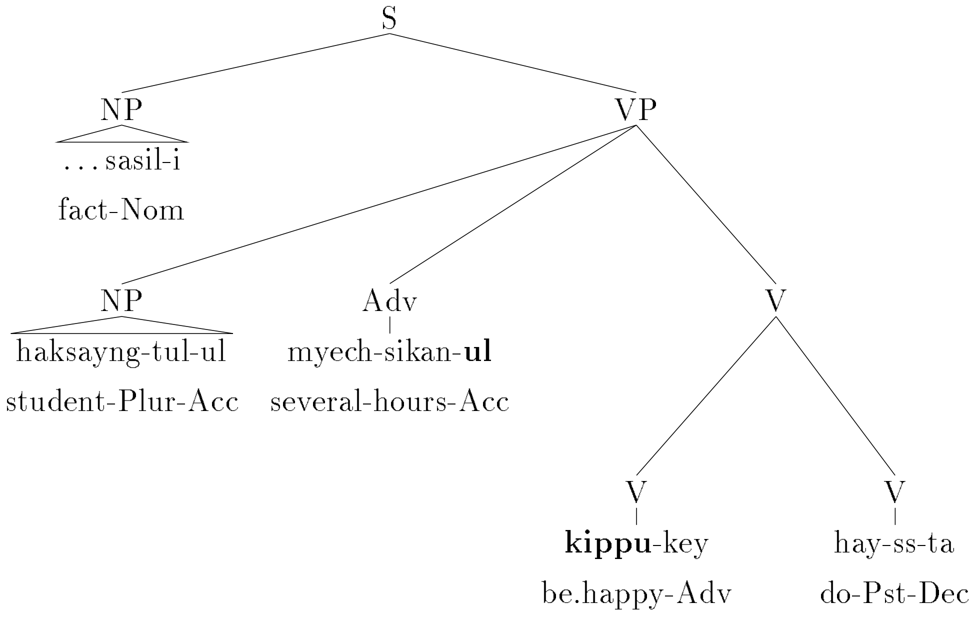
In (349), *myech-sikan-i* is sister to a non-agentive head and bears Nominative case.[19]

(349)



In (350), *myech-sikan-ul* is sister to an agentive head and bears Accusative case.

(350)



In order to account for the case marking on duration adverbials lexically, we would need a way for adverbs to be inherited by higher verbs without their case

[19] This example is acceptable only if attributed to an omniscient point of view, as in a novel. In ordinary conversation, the longer, non-stative form of the Psych verb, namely *kipp-e ha-ta*, would be used, indicating showing signs of the emotion.

specifications. Distinguishing the semantic index of an NP from the grammatical information of an NP performs this function elsewhere, so it would appear to be the likeliest solution here, but the semantics of adverbials is very different from the real-world referent of an NP as captured by its index. Thus, rather than introduce the dubious new concept of an index for an adverbial, we would need to localize all the necessary information characterizing the adverb in its semantic CONTENT, so that the inheriting verb could inherit it totally by CONTENT, allowing different lexical syntactic CAT information for the inheriting verb and the modified verb. Because the MOD value of an adverb is located within CAT, making this move in order to preserve lexical case marking could lose valuable information about restrictions on which verbs an adverb can modify.

The lexical entry given below in (351) shows how the causative verb *ha-ta* could inherit adverbs, with either Nominative or Accusative case marking, and assign them all Accusative case lexically. The shared index between the adverbial phrase on the COMPS list of *ha-ta* and the adverbial phrase on the COMPS list of the complement verb is intended to make those phrases share the same semantic information.

(351) Hypothetical Duration Adverbial Modification with Lexical Case

$$\begin{bmatrix} \text{PHON} & \langle \text{ ha-ta } \rangle \\ \text{CAT} & \begin{bmatrix} \text{SUBJ} & \langle \text{NP}_{\boxed{1}} \rangle \\ \text{COMPS} & \left\langle \text{NP}_{\boxed{2}}, \ldots \text{ AdvP} \begin{bmatrix} \text{CASE} & \text{Acc} \\ \text{CONT} & \boxed{3} \end{bmatrix}, \ldots \text{ V} \begin{bmatrix} \text{SUBJ} & \langle \text{NP}_{\boxed{2}} \rangle \\ \text{COMPS} & \langle \ldots \text{ AdvP}[\text{CONT } \boxed{3}], \ \ldots \rangle \end{bmatrix} \right\rangle \end{bmatrix} \\ \text{CONTENT} & \begin{bmatrix} \text{CAUSER} & \boxed{1} \\ \text{CAUSEE} & \boxed{2} \\ \text{SOA-ARG} & \end{bmatrix} \end{bmatrix}$$

4.4.2.4 Conclusion: Syntactic Specification of Grammatical Case

In each of the three kinds of case alternations, lexical case specifications could account for the facts of the situation, but not without duplicating information, either by two lexical entries as in the psych verb example, or by specifying case in places it will never be used or referred to grammatically as in the passive and duration adverbial examples. Making nominative and accusative case marking rely on the syntactic configuration of the argument and the head subcategorizing for it allows us to specify case information only once, with the same simple generalizations for nominative and accusative case covering a wide range of constructions, as will be seen in greater detail in the following section. Syntactic case marking allows us to account neatly for the facts, while still maintaining the lexicalist principles of a monotonic syntax and realistic morphology and phonology,

4.4.3 Conclusion: Theoretical Case Issues in HPSG

The facts of Korean argue that we need to distinguish the grammatical cases of nominative and accusative from the many semantic cases of Korean, and that which of the two grammatical cases an argument bears depends on the syntactic configuration in which that argument occurs. While a lexical case marking account could possibly account for these alternations based on syntactic configuration, such an account would involve duplication of information, and might possibly lose important syntactic specifications while relying on semantics alone to identify inherited arguments and adjuncts. Syntactic assignment of grammatical case avoids these problems and maintains lexicalist principles, while matching the facts closely. With this foundation of these ideas, we are now ready to examine my analysis of Korean case in detail.

4.5 Case Marking in Korean

In presenting my analysis of Korean case, I begin by discussing how grammatical and semantic case marking are reflected in the lexicon, and then move to the fuller specification of grammatical case in the syntax through the Case Principles.

4.5.1 Case in the Lexicon

In keeping with the lexicalist traditions of HPSG, much of my analysis of Korean case marking is located within the lexicon. The case markers have lexical entries, as do case-marked nouns. Argument-taking heads have lexical entries which restrict the possible cases their arguments can bear. Linking theory, in accounting for the number and kind of arguments taken by verbs, also would be responsible for the case restrictions in lexical entries.

4.5.1.1 Case on Nouns

Noun stems lexically combine with case markers, with the specifications of the case markers determining the case restrictions on the resulting case-marked noun. The information contributed by the case markers differs according to whether the case marker is a grammatical case or a semantic case, as indicated in the lexical entries and discussions below.

4.5.1.1.1 Grammatical Case As discussed in Section 4.4.1, Korean case marking shows a split between the grammatical cases of nominative and accusative[20], and semantic cases such as dative, comitative, ablative, etc. Grammatical case is represented as a type to which nominative and accusative, specific values of the case feature, belong.

Section 4.4.1.2 gave lexical entries for the grammatical case markers and grammatical case bearing nouns, along with discussion of particular aspects of these HPSG signs. I repeat those lexical entries here. (352) and (353) describe the accusative and nominative case markers.

[20]Genitive is most likely a grammatical case as well, but arguments of noun phrases are outside the scope of this thesis.

(352)

$$\left[\begin{array}{ll}
\text{PHON} & \left[\begin{array}{l}\text{PHFORM -lul}\\ \text{PHCOMPS}|\text{FINAL vowel}\end{array}\right]\\
\text{CAT} & \left[\begin{array}{ll}\text{HEAD} & \left[\begin{array}{l}\textit{noun}\\ \text{CASE Acc}\end{array}\right]\\ \text{COMPS} & \left\langle \left[\begin{array}{l}\text{HEAD}\left[\textit{noun}\right]\\ \text{NFORM stem}\\ \text{INDEX}\ \boxed{1}\end{array}\right]\right\rangle\end{array}\right]\\
\text{CONTENT} & \left[\text{INDEX}\ \boxed{1}\right]
\end{array}\right]$$

(353)

$$\left[\begin{array}{ll}
\text{PHON} & \left[\begin{array}{l}\text{PHFORM -ka}\\ \text{PHCOMPS}|\text{FINAL vowel}\end{array}\right]\\
\text{CAT} & \left[\begin{array}{ll}\text{HEAD} & \left[\begin{array}{l}\textit{noun}\\ \text{CASE Nom}\end{array}\right]\\ \text{COMPS} & \left\langle \left[\begin{array}{l}\text{HEAD}\left[\textit{noun}\right]\\ \text{NFORM stem}\\ \text{INDEX}\ \boxed{1}\end{array}\right]\right\rangle\end{array}\right]\\
\text{CONTENT} & \left[\text{INDEX}\ \boxed{1}\right]
\end{array}\right]$$

(354) and (355) give lexical entries for the noun *cha* ‘car’, in its accusative and nominative forms, respectively.

(354)

$$\left[\begin{array}{ll}
\text{PHON} & \langle\ \text{cha-lul}\ \rangle\\
\text{CAT}|\text{HEAD} & \left[\begin{array}{l}\textit{noun}\\ \text{CASE Acc}\end{array}\right]\\
\text{CONTENT} & \left[\begin{array}{ll}\text{INDEX}\ \boxed{1} & \\ \text{RESTRICTION} & \left\{\left[\begin{array}{l}\text{RELN car}\\ \text{CAR}\ \boxed{1}\end{array}\right]\right\}\end{array}\right]
\end{array}\right]$$

(355)
$$\begin{bmatrix} \text{PHON} \ \langle \text{ cha-ka } \rangle \\ \text{CAT}|\text{HEAD} \begin{bmatrix} \textit{noun} \\ \text{CASE Nom} \end{bmatrix} \\ \text{CONTENT} \begin{bmatrix} \text{INDEX } \boxed{1} \\ \text{RESTRICTION} \left\{ \begin{bmatrix} \text{RELN car} \\ \text{CAR } \boxed{1} \end{bmatrix} \right\} \end{bmatrix} \end{bmatrix}$$

As seen in these entries, the lexical representation of grammatical case on nouns is primarily a syntactic specification, located in the CASE feature, with the semantic CONTENT of nouns with grammatical case coming from the semantic CONTENT of the noun stem itself.

4.5.1.1.2 Semantic Case Semantic case markers on nouns, such as dative *-eykey*, comitative *-(k)wa*, ablative *-eyse*, directional *-ey* and *-lo*, etc., add more semantic CONTENT to the nouns they attach to, and less syntactic information. For NP's in Korean bearing semantic case, I will adopt the content sharing hypothesis which Davis (1996) proposes for PP complements in English, in the tradition of Gawron (1983, 1986) and Wechsler (1991, 1995). Under this hypothesis, the semantic content of an NP with semantic case will be unified with the semantic content of the verb which subcategorizes for it. Content-sharing for NP's with semantic case allows these NP's to be treated in the same way as adverbial adjuncts are treated in the Adjunct Addition Lexical Rule, discussed in Section 3.4.4.

In the interests of simplicity, my current analysis locates the only distinctions between semantic cases in their distinct semantic contributions to the content they share with verbs. Accordingly, the value for the CASE feature would be the same for all semantic cases, with each one listed in the lexicon as [CASE SEM], and the general, undifferentiated SEM being the only possible feature value of type *semantic*. The type *semantic* will always be indicated in italics, while SEM, the feature value, will always be indicated in capitals, indicating its broad generality. While I will usually mention only the type *sem* or only the value SEM, both fit together as a full description of a CASE value as follows.

(356)
$$\begin{bmatrix}\text{CASE} & \begin{bmatrix} \textit{sem} \\ \text{SEM} \end{bmatrix}\end{bmatrix}$$

However, a fuller examination of the distribution of semantic case in Korean may require adding a syntactic distinction in the CASE value for each semantic case suffix. Gawron (1983) and Davis (1996) argue that semantic specification alone is insufficient to characterize which prepositions are compatible with which verbs in English, citing such pairs as *long for/*after* and *thirst for/after*. With syntactic as well as semantic distinctions in Korean semantic case, it might be necessary to distinguish values such as [CASE dative], [CASE comitative], and [CASE directional], all belonging to the *sem* type. Without evidence that syntactic specification is linguistically necessary in addition to fine-grained semantic analysis, I will give lexical entries stating only [CASE SEM], while giving fuller names to particular semantic cases in the glosses for examples as a shorthand encapsulation of the semantics of that case marker. Another possible way to specify syntactic restrictions on what NP's with semantic case can combine with is through the MOD value of these NP's, similar to the MOD value of adverbial adjuncts.

I now begin a more detailed examination of my semantic case analysis, in the context of previous accounts concerned with similar issues.

Pollard and Sag (1994:342–343) give an account of how a preposition such as *to* in English could contribute the meaning that its object is a goal for a higher predicate, giving the lexical entry below.[21]

[21] In the interests of simplicity of presentation, I have changed the SUBCAT list from Pollard and Sag (1994) to a COMPS list, moved the sort label from the left-subscript position to the top central location of more recent HPSG style, and omitted the NUCLEUS subvalue of CONTENT, which contains the *transfer* parameterized state of affairs (psoa). NUCLEUS includes the non-quantificational core of CONTENT, while quantificational information is expressed separately in the QUANTIFIERS list. Quantificational scope will not be relevant to our current discussion.

(357)
$$\begin{bmatrix} \text{CAT} & \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \textit{prep} \end{bmatrix} \\ \text{COMPS} & \left\langle \text{NP} \begin{bmatrix} \text{ACC} \end{bmatrix}_{\boxed{1}} \right\rangle \end{bmatrix} \\ \text{CONTENT} & \begin{bmatrix} \textit{transfer} \\ \text{GOAL } \boxed{1} \end{bmatrix} \end{bmatrix}$$

This entry presupposes the suggestion of Pollard and Sag (1994:338) that parameterized states of affairs (or psoas) form a sortal hierarchy, with atomic sorts representing individual relations dominated by more general sorts representing the common information shared by those relations, and those sorts in turn dominated by more general sorts until all psoas are dominated by the most general sort "psoa" itself.[22] Under this system, it is possible to specify that certain kinds of semantic roles are compatible with certain sorts of psoas, with supersorts including all of the more specific kinds of psoas which they dominate. The lexical entry for *to* above would be compatible with any verb describing a *transfer* kind of psoa, such as *give*, *contribute*, or *send*. The *goal* role would not be specified in the verb's lexical entry, but instead would unify with that information as the PP combines with the verb in syntax.

The way the CONTENT of the PP is identified with that of the *transfer* verb is through the lexical entry of the verb subcategorizing for the PP. This is seen in the lexical entry Pollard and Sag give for their sample *transfer* verb *give*.[23] This entry uses the colon notation for including the semantic CONTENT of an abbreviated item (Pollard and Sag 1994:28), describing in this sign a PP headed by *to* and with CONTENT $\boxed{4}$.

[22]To be precise, Pollard and Sag use the sort *qfpsoa*, for "quantifier-free parameterized state of affairs". I use the simpler term *psoa* here because quantifiers are not relevant to the current discussion, however, my formulation of semantic case here is completely compatible with the expanded terms of Pollard and Sag (1994) indicating a treatment of quantifier scope as well.

[23]For clear presentation, I have added the higher *transfer* sort to the entry in top-central position, and listed *give* as a relation. As the relations are themselves sorts, I believe these formatting changes do not affect the account expressed by Pollard and Sag's lexical entry, while the changes do permit easier comparison with other entries throughout this thesis.

(358)
$$\begin{bmatrix} \text{CAT} & \begin{bmatrix} \text{HEAD verb[fin]} \\ \text{SUBCAT} \left\langle \text{NP}_{\boxed{2}},\ \text{NP[ACC]}_{\boxed{3}},\ \text{PP[TO]} : \boxed{4} \right\rangle \end{bmatrix} \\ \text{CONTENT } \boxed{4} & \begin{bmatrix} \textit{transfer} \\ \text{RELN give} \\ \text{GIVER } \boxed{2} \\ \text{GIFT } \boxed{3} \end{bmatrix} \end{bmatrix}$$

Pollard and Sag (1994:343) mention that this approach "raises a number of questions about how o-command, as well as the other constructs of binding theory, are to be redefined." Employing this treatment for all the semantic case-bearing NP's in Korean would mean that the only NP's which would have indices visible on the SUBJ and COMPS lists would be those with grammatical case, namely Nominative, Accusative, or possibly Genitive case. Because the index of an NP is located within its CONTENT, the NP's with semantic case, having their CONTENT identified with the verb's CONTENT, would have no individual indices visible for binding theory. This would greatly limit the range of data that the existing binding theory would address. Davis (1996) also notes this problem for the content-sharing account of English PP's, and discusses how to remedy this concern by sharing all or part of the CONTENT of the NP object of the PP with a syntactic element of the PP, which will be distinct from other PP's on the COMPS list and from the verb.

Davis favors preserving the separate index information for each NP object of an English PP in the HEAD feature "AGR". Kathol (1994) proposes the AGR feature for HPSG in order to separate morpho-syntactic agreement from semantic agreement, in view of the "hybrid nouns" analyzed in Corbett (1991), and to group together in the AGR feature only the features which are relevant to agreement in a particular language or a particular construction. Because the person, number, and gender features used for agreement crosslinguistically are features belonging to the semantic index used in binding theory, the re-definition of binding theory as applying to the AGR feature is not a major change to HPSG. Davis makes the parallel clear by having the AGR feature take an *agr-obj* as its value, with A-INDEX as an attribute of an *agr-obj*. The *agr-obj* sort distinguishes pronouns and anaphors from other nouns, just as *nom-obj* does in standard HPSG, while A-INDEX takes values of sort *index*.

NP's in Davis's account have their A-INDEX identified with their INDEX, so the use of the AGR feature for binding theory results in no difference at all for these NP's. PP's identify their AGR value with their object NP's AGR value, as seen in the HPSG sign from Davis (1996) below.[24]

(359)

$$\begin{bmatrix} \textit{preposition} \\ \text{SYNSEM}|\text{LOCAL} \begin{bmatrix} \text{CAT}|\text{HEAD}|\text{AGR } \boxed{1} \\ \text{COMPS} \left\langle \text{NP} \begin{bmatrix} \text{AGR } \boxed{1} \end{bmatrix} \right\rangle \end{bmatrix} \end{bmatrix}$$

With coindexation in binding theory defined in terms of A-INDICES within the syntactic HEAD feature, instead of semantic INDICES, Davis can preserve the distinct identity of the NP objects of PP's for binding theory, while deriving the semantic benefits of having PP's identify their CONTENT's with the CONTENT of the verb they combine with. I will follow this approach for NP's with semantic case in Korean.

Because the semantic case markers in Korean are morphologically attached, my account will differ from the English accounts Pollard and Sag, and Davis outline in having the meaning of the case marker in a lexical entry for that morpheme, instead of in a lexical entry for a separate word, as in a postposition. Thus we might give the semantic case marker -*eykeyse* 'from' the following lexical entry. The COMPS feature in this entry indicates that -*eykeyse* subcategorizes for a stem-form noun, the index of which is identified as the A-INDEX of the resulting case-marked noun.

[24]For purposes of easier comparison within this thesis, I have moved Davis's *preposition* type label from left-corner location to top-central location, and eliminated the "VALENCE" feature which takes COMPS as an attribute.

(360)

$$\begin{bmatrix} \text{CAT} & \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \textit{noun} \end{bmatrix} \\ \text{MOD} & [\ \text{V} : \boxed{1}\ ] \\ \text{COMPS} & \left\langle \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \textit{noun} \end{bmatrix} \\ \text{NFORM} & \text{stem} \\ \text{INDEX} & \boxed{2} \\ \text{CONTEXT} & \boxed{3} \end{bmatrix} \right\rangle \\ \text{NFORM} & \text{-eykeyse} \\ \text{A-INDEX} & \boxed{2} \end{bmatrix} \\ \text{CONTENT} \ \boxed{1} & \begin{bmatrix} \textit{transfer} & \\ \text{SOURCE} & \boxed{2} \end{bmatrix} \\ \text{CONTEXT} \ \boxed{3} & \end{bmatrix}$$

A complete noun plus semantic case marker, such as *chinkwu-eykeyse* 'from a friend', would have a lexical entry like the following. This noun's CONTENT is the CONTENT of a *transfer* verb with a source equal to the noun's A-INDEX. The noun's MOD feature ensures that it will combine with a verb with the same CONTENT.

(361)

$$\begin{bmatrix} \text{PHON} & \langle\ \text{chinkwu-eykeyse}\ \rangle \\ \text{CAT} & \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \textit{noun} \end{bmatrix} \\ \text{MOD} & [\ \text{V} : \boxed{1}\ ] \\ \text{COMPS} & \langle\ \rangle \\ \text{NFORM} & \text{-eykeyse} \\ \text{A-INDEX} & \boxed{2} \end{bmatrix} \\ \text{CONTENT} \ \boxed{1} & \begin{bmatrix} \textit{transfer} & \\ \text{SOURCE} & \boxed{2} \end{bmatrix} \\ \text{CONTEXT}|\text{BACKGROUND} & \left\{ \begin{bmatrix} \text{FRIEND} & \boxed{2} \\ \text{BEFRIENDED} & \end{bmatrix} \right\} \end{bmatrix}$$

A *transfer* verb such as the verb *pat-ta* 'receive' would have a lexical entry like that in (362) below. Its type is *receive*, which is a subtype of *transfer*.

(362)

$$\begin{bmatrix} \text{PHON} & \langle \text{ pat-ta } \rangle \\ \text{CAT} & \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \textit{verb} \end{bmatrix} \\ \text{SUBJ} & \left\langle \text{NP}_{\boxed{1}} \right\rangle \\ \text{COMPS} & \left\langle \text{NP}_{\boxed{2}} \right\rangle \end{bmatrix} \\ \text{CONTENT} & \begin{bmatrix} \textit{transfer} \\ \text{RELN receive} \\ \text{RECEIVER } \boxed{1} \\ \text{RECEIVED } \boxed{2} \end{bmatrix} \end{bmatrix}$$

An extra NP could be added to the COMPS list by the Adjunct Addition Lexical rule, to give the lexical entry in (363). This rule will also include a unification of the CONTENT in the MOD feature of the adjunct with the CONTENT of the modified head,

(363)

$$\begin{bmatrix} \text{PHON} & \langle \text{ pat-ta } \rangle \\ \text{SYNSEM} & \begin{bmatrix} \text{CAT} & \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \textit{verb} \end{bmatrix} \\ \text{SUBJ} & \left\langle \text{NP}_{\boxed{1}} \right\rangle \\ \text{COMPS} & \left\langle \text{NP}_{\boxed{2}}, \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \textit{noun} \end{bmatrix} \\ \text{MOD} & \begin{bmatrix} \text{V} : \boxed{4} \end{bmatrix} \\ \text{A-INDEX} & \boxed{3} \end{bmatrix} \right\rangle \end{bmatrix} \\ \text{CONTENT } \boxed{4} & \begin{bmatrix} \textit{receive} \\ \text{RECEIVER } \boxed{1} \\ \text{RECEIVED } \boxed{2} \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

Assuming the adjunct NP is satisfied along with the subcategorized direct object, the satisfaction of the COMPS list results in the sign given below for the VP *chinkwu-eykeyse phyenci-lul pat-ta* 'receive a letter from a friend'.[25]

[25]Note that the COMP-DTRS value includes the full HPSG signs for the NP's which have been satisfied from the COMPS list, and thus information about these parts of the phrase, such as the fact that the index $\boxed{2}$refers to a letter, and that the index $\boxed{3}$refers to a friend.

(364)

$$\begin{bmatrix} \text{PHON} & \langle \text{ chinkwu-eykeyse phyenci-lul pat-ta } \rangle \\ \text{SYNSEM} & \begin{bmatrix} \text{CAT} & \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \textit{verb} \end{bmatrix} \\ \text{SUBJ} & \left\langle \text{NP}_{\boxed{1}} \right\rangle \\ \text{COMPS} & \langle\rangle \end{bmatrix} \\ \text{CONTENT} & \begin{bmatrix} \textit{receive} & \\ \text{RECEIVER} & \boxed{1} \\ \text{RECEIVED} & \boxed{2} \\ \text{SOURCE} & \boxed{3} \end{bmatrix} \end{bmatrix} \\ \text{COMP-DTRS} & \left\langle \text{NP}_{\boxed{2}},\ \text{NP}_{\boxed{3}} \right\rangle \end{bmatrix}$$

If another noun with incompatible information, such as *cip-ulo* 'home-Dir' tried to unify with *pat-ta* 'receive', it would not produce an acceptable parameterized state of affairs (psoa) in the sortal hierarchy, since *receive*-type situations do not involve directional goals, distinct from the recipient. Similarly, a verb like *takk-ta* 'polish', would not allow *chinkwu-eykeyse* 'from a friend' to unify with it, due to the resulting unacceptable psoa, as determined by the sortal hierarchy. *cleaning*-type situations do not involve sources.

Using the sortal hierarchy to explain why certain kinds of NPs are semantically incompatible allows individuals with more varied and less restrictive imaginations to have sortal hierarchies which permit a wider range of combination. Differences between speakers on the fine points of precisely what kinds of roles may possibly occur in a situation would be natural and expected.

This approach to semantic case makes use of the lexical specifications of the semantic case marker as to what role the NP it heads will play in the verbal relation it selects for, as well as the lexical specifications of the CONTENT of the verb, and the unification of the CONTENT in an adjunct NP's MOD value with the verb's CONTENT specified in the lexical Adjunct Addition Rule. Syntax brings together the specific NP and the specific verb, whose information will combine according to the unifications prescribed lexically.

4.5.1.2 Case Specified by Heads for Arguments

The grammatical and semantic case marking borne by nouns is only part of the complete phenomenon of case marking. Heads also specify case marking possibilities for their arguments. As discussed in the preceding paragraphs, the semantic type of a verb will determine what kinds of semantic case are possible on its NP arguments, since the CONTENT of semantic case-marked NP's must be able to unify with the CONTENT of the verb. The other way in which verbs restrict case marking possibilities of their arguments is through specifications of these arguments on the SUBJ and COMPS valence lists. The distinction between grammatical and semantic case plays an important role here: verbs do not specify case information in the valence lists beyond specifying the type of grammatical or semantic case each argument bears. The following examples illustrate this point.

A prototypical transitive verb such as *mek-ta* 'eat' would have a lexical entry as in (365), with both its subject, the eater, and its object, the eaten thing, specified as bearing a case value of the type "grammatical". This prevents any semantic case from unifying with these arguments specifications; the semantic type would clash with the grammatical type, and prevent unification.

(365)

$$
\left[\begin{array}{ll}
\text{PHON} & \langle \text{ mek-ta } \rangle \\
\text{SYNSEM} & \left[\begin{array}{ll}
\text{CAT} & \left[\begin{array}{ll}
\text{HEAD} & \left[\textit{verb}\right] \\
\text{SUBJ} & \left\langle \left[\begin{array}{ll}
\text{HEAD} & \left[\begin{array}{l} \textit{noun} \\ \text{CASE } [\textit{gram}] \end{array}\right] \\
\text{INDEX} & \boxed{1}
\end{array}\right] \right\rangle \\
\text{COMPS} & \left\langle \left[\begin{array}{ll}
\text{HEAD} & \left[\begin{array}{l} \textit{noun} \\ \text{CASE } [\textit{gram}] \end{array}\right] \\
\text{INDEX} & \boxed{2}
\end{array}\right] \right\rangle
\end{array}\right] \\
\text{CONTENT} & \left[\begin{array}{l}
\text{RELN eat} \\
\text{EATER } \boxed{1} \\
\text{EATEN } \boxed{2}
\end{array}\right]
\end{array}\right]
\end{array}\right]
$$

A ditransitive verb such as *cwu-ta* 'give' would have a beneficiary argument with semantic case, as well as a subject and object with grammatical case, as seen in the lexical entry below in (366). As discussed in the section on semantic case, we see that the CONTENT of the NP argument with semantic case is identified with that of the verb, and that the index of the noun itself, which plays the beneficiary role in the verb's CONTENT, is structure-shared with the NP's A-INDEX value. The NP, unlike the noun stem which suffixed the semantic case marker, does not have its own INDEX value, since its CONTENT is identified with the verb.

(366)

$$\begin{bmatrix}
\text{PHON} & \langle \text{ cwu-ta } \rangle \\
\text{SYNSEM} & \begin{bmatrix} \text{CAT} & \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \textit{verb} \end{bmatrix} \\ \text{SUBJ} & \left\langle \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \textit{noun} \\ \text{CASE} \ [\textit{gram}] \end{bmatrix} \\ \text{INDEX} & \boxed{1} \end{bmatrix} \right\rangle \\ \text{COMPS} & \left\langle \begin{bmatrix} \text{HEAD} & \begin{bmatrix}\textit{noun} \\ \text{CASE} \ [\textit{gram}]\end{bmatrix} \\ \text{INDEX} & \boxed{2}\end{bmatrix}, \begin{bmatrix} \text{HEAD} & \begin{bmatrix}\textit{noun}\\ \text{CASE} \ [\textit{sem}]\end{bmatrix} \\ \text{A-INDEX} & \boxed{3} \\ \text{CONTENT} & \boxed{4}\end{bmatrix}\right\rangle \end{bmatrix} \end{bmatrix} \\
\text{CONTENT} \ \boxed{4} & \begin{bmatrix} \text{RELN} & \text{eat} \\ \text{GIVER} & \boxed{1} \\ \text{GIVEN} & \boxed{2} \\ \text{BENEFICIARY} & \boxed{3}\end{bmatrix}
\end{bmatrix}$$

Thus the lexical entries of verbs contain restrictions on the case of arguments which combine with those verbs. The grammatical case specification on a verb's argument is compatible with either nominative or accusative, while the semantic case specification is compatible with any semantic case whose CONTENT unifies appropriately with the verb's CONTENT, including any role specification for the NP's A-INDEX. When a verb subcategorizes for a semantically-case-marked argument, it will assign it a role in its CONTENT. When a semantically-case-marked NP is added to a verb's

COMPS list by the Adjunct Addition Lexical Rule, the verb will not specify the role, and the CONTENT specification of the NP will determine more precisely how the noun stem's index fits into the CONTENT of the verb.

4.5.1.3 Linking Theory

As may be apparent even from the two lexical entries above, there will be many similarities among verbs in the lexical case specifications of their arguments. These similarities are the kind of generalization addressed by linking theory, along with generalizations concerning which argument of a verb plays which semantic role, i.e. determining the number of arguments and the obliqueness of those arguments from the semantic properties of the verb. Wechsler (1991) and Davis (1996) have contributed to the development of a linking theory for HPSG, as mentioned briefly in Section 4.2.5. While I will not adopt a particular linking theory here, I will sketch the kinds of generalizations which are not captured in my current proposal, and which would naturally fit within linking theory.

Case generalizations which linking theory could explain range from widely general to more particular. All subjects of verbs are assigned grammatical case. For many prototypical transitive verbs, which would presumably share a semantic type in the sortal hierarchy of verb CONTENT's, the first item on the COMPS list takes grammatical case. Verbs of a different semantic type assign semantic case to the first item on their COMPS list, such as *taka.o-ta* 'approach'. In most instances, items after the first item on the COMPS list will take semantic case. With these regularities explained by a linking theory, the representation of case in the Korean lexicon, as described in the preceding sections, would be explanatory and complete.

4.5.2 Case Principles

The case information provided by the lexical entries of verbs and case-marked nouns constitutes much of the case analysis; however, as indicated in Section 4.4.2, certain case alternations indicate that case specification is not complete until it is certain which syntactic configuration an NP occurs in. When an NP argument is satisfied from a verb's valence list, the specifications of the NP and of the verb for that subcategorized NP must unify; in addition, the information about the syntactic configuration where the subcategorization satisfaction takes place is also unified with the noun by means of the Case Principles.

Because Case Principles apply at the moment of subcategorization satisfaction, they can be seen as further clauses included within the various grammar schemata. However, in the interests of clear presentation and the ability to abstract out cross-linguistic regularities of either case marking or constituent structure phrase types, I will state case principles separately from the grammar schemata.

In the following sections, I first present the Subject Case Principle, and then discuss the more complex Object Case Principle, including its application to adverbials.

4.5.2.1 The Subject Case Principle

The Subject Case Principle is responsible for specifying that subjects, which verbs lexically specify as bearing grammatical case, are fully specified with nominative case in particular. In other words, the Subject Case Principle provides the information which blocks accusative NP's from unifying with NP's on SUBJ lists of verbs which are lexically specified with a CASE value belonging to the *grammatical* case type.

(367) **Subject Case Principle**: Specify any NP of CASE [*gram*] on an occurring SUBJ-DTR list of the mother node as:

$$\text{CASE} \begin{bmatrix} \textit{gram} \\ \text{Nom} \end{bmatrix}$$

The Subject Case Principle, as I have stated it, provides a nominative case specification only to NP's whose CASE value is restricted to cases of the *grammatical* type. On the SUBJ list, the distinction between NP's with *grammatical*-type case and NP's with *semantic*-type case may not matter at all, but this distinction does play an important role in distinguishing objects from more oblique arguments on the COMPS list, as will be seen in the section on the Object Case Principle.

If we consider the Subject Case Principle as part of the relevant grammar schema, Schema 1, the Head-Subject Schema, then we would unify them to produce the following. This unified presentation reflects my position that grammatical case marking reaches its full specification only at the moment of subcategorization satisfaction.

(368) **(Korean) Schema 1 (with SUBJ case)**: a phrase with DTRS value of sort *head-subj-struc* in which the HEAD-DTR value is a phrasal sign, and any NP of CASE [*gram*] on an occurring SUBJ-DTRS list is specified as:

$$\text{CASE}\begin{bmatrix} \textit{gram} \\ \text{Nom} \end{bmatrix}$$

Thus, the Subject Case Principle ensures that all subjects occurring in subject position in constituent structure will be nominative, adding this particular specification to the verb's more general specification that its subject will have a case value of sort *grammatical*.

4.5.2.2 The Object Case Principle

The Object Case Principle accounts for a more complex set of facts than the Subject Case Principle. As discussed in Section 4.1.3, direct objects in Korean can be either accusative or nominative, depending on the agentivity of the verb they combine with. Section 4.1.4 added the alternation of accusative and nominative on duration adverbials. The Object Case Principle I will present here attempts to unify these various case alternations of items on the COMPS list.

In this section, I will first describe the main alternate analyses we could apply to the object case assignments: a direct assignment of nominative and accusative case, and the indirect assignment of nominative and accusative due to unification of a feature borne by both the verb and the case-marked noun. I will next show how evidence from case-marked floating quantifiers supports the indirect, feature-unification approach. I will move on to how the analysis of alternating object case encompasses the nominative/accusative and locative case alternations on adverbials, and examine the consequences of this analysis for non-subject, non-object nominative Focus Phrases. The analysis also interacts with subject nominatives in a way that provides an account for the subject-only honorific nominative case marker *-kkeyse*. Finally, I provide the integration of the Object Case Principle into the Grammar Schemata, for the complete picture of how the Object Case Principle interacts with other parts of Korean grammar.

4.5.2.2.1 Analyzing Object Case The main challenge of object case marking is to provide the correct case marking alternant, accusative for objects of agentive verbs, and nominative for objects of nonagentive verbs. Two approaches to this challenge are possible. First, the Object Case Principle could directly assign accusative and nominative case, in accordance with the agentivity value of the verb subcategorizing for the arguments. In the second way, which I will argue for, a single case principle which unifies the agentivity specification on the verb with an "AGENTIVE-PREDICATE-SISTER", or "AG-PR-SIS" feature on the noun phrase, with opposite values for accusative and nominative nouns.

The direct case assignment approach makes the object case principle similar to the subject case principle in directly naming the case assigned. It would result in case principles such as the ones below.

(369) **(Not Adopted) Direct Object Case Principle A**: Specify any NP whose CASE value is of sort *grammatical*, on the COMPS list of the mother node of an [AGENTIVE +] verb as [CASE Acc].

(370) **(Not Adopted) Direct Object Case Principle B**: Specify any NP whose CASE value is of sort *grammatical*, on the COMPS list of the mother node of an [AGENTIVE −] verb as [CASE Nom].

The feature unification approach would allow a single case principle to cover all the object case marking, with the correlation between accusative objects and agentive verbs, and between nominative objects and non-agentive verbs, evident in the lexical entries for nominative and accusative, rather than in the case principle. The case principle would be as follows, using the feature AGENTIVE-PREDICATE-SISTER (abbreviated AG-PR-SIS) to indicate that the NP and the verb or VP involved are sister to each other, and that the verb denotes an agentive predicate.

(371) **Object Case Principle (preliminary version)**: Unify the AGENTIVE-PREDICATE-SISTER (AG-PR-SIS) value of any NP whose CASE value is of sort *grammatical*, on the COMPS list of the mother node with the AGENTIVE-PREDICATE-SISTER (AG-PR-SIS) value of the head.

The feature AG-PR-SIS will be lexically specified on case-marked nouns and on verbs. For verbs, the feature will be predictable from their semantic CONTENT, specifically whether they fall into an agentive sort or not. For nouns, the lexical entries for the accusative and nominative case markers will add the AG-PR-SIS feature to the noun stem. The entry for the accusative marker *-lul* specifies [AG-PR-SIS +], as seen below.

(372)
$$\begin{bmatrix} \text{PHON} \ \langle \text{ -lul } \rangle \\ \text{CAT} \begin{bmatrix} \text{HEAD} \begin{bmatrix} \text{CASE} \begin{bmatrix} \textit{gram} \\ \text{Acc} \end{bmatrix} \\ \text{AG-PR-SIS} \ + \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

[AG-PR-SIS −] will be the specification in the entry for the nominative marker *-ka*, as in the following example.

(373)
$$\begin{bmatrix} \text{PHON} \ \langle \text{ -ka } \rangle \\ \text{CAT} \begin{bmatrix} \text{HEAD} \begin{bmatrix} \text{CASE} \begin{bmatrix} \textit{gram} \\ \text{Nom} \end{bmatrix} \\ \text{AG-PR-SIS} \ - \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

With these entries, the [AG-PR-SIS ±] contrast on case-marked NP's is explicitly listed the minimal number of times, and inherited productively to all relevant nouns through regular word formation.

A third, more extreme, approach which I will not consider a reasonable alternative for this case marking problem is one in which noun phrases actually select for the kind of verb they will combine with, rather than simply bearing the AG-PR-SIS feature. In this approach, NP's would select for the SYNSEM value of a verb, using a feature like "COMBIN-HEAD" in the same way as adjectives use the MOD feature to specify information about the content of the head they will combine with. The most likely version of this approach would have all NP's specified for this feature, by inheritance from the nominative and accusative case marker entries, though only through the Object Case Principle would this feature be checked against the verb's SYNSEM value. This more elaborate system would imply that arguments, either in Korean or in other languages, would select for other features of a verb beyond agentivity, including anything within the SYNSEM value of a verb. My preferred approach is more limited, envisioning that work on case might discover a small number of features relevant for case alternations such as this. I would rather slowly add feature by feature than give arguments and case markers such detailed specification of heads.

I will argue here for the second approach, involving unification of the AG-PR-SIS feature on the verb with the same feature on the NP's on the COMPS list of the verb. Support for this position comes from case-agreeing quantifiers, as well as from the adverbial nominative/accusative and locative case alternations based on the stativity of the verb.

4.5.2.2.2 Floating Quantifiers Support Feature Unification Korean floating quantifiers generally agree in case with the noun phrase they quantify (Gerdts 1985, 1987, Hong 1990b). An example of an accusative floating quantifier agreeing with an accusative object, as in (374) would be compatible with either the first case marking approach, with direct accusative assignment, or my approach, with unification of the AG-PR-SIS feature between grammatically marked COMPS NP's and the verb.

(374) Nay-ka nonmwun-**ul** seys-**ul** ilk-ess-ta
I-Nom thesis-**Acc** three-**Acc** read-Pst-Dec
'I read three theses.'

Under either approach, case-marked floating quantifiers would appear on the COMPS list, as do other adjuncts. In the first approach, the quantifiers would have [CASE *gram*] specifications which would be further specified as [CASE Acc] by Direct Object Case Principle A, in exactly the same way as the object would be specified with accusative case. This would be unproblematic for an example like (374), but in an example with a nominative quantifier quantifying the subject of an agentive verb, as in (375), the first case-marking approach would have no account for the data.

(375) Haksayng-**i** chayk-ul seys-**i** ilk-ess-ta
student-**Nom** book-Acc three-**Nom** read-Pst-Dec
'Three students read the book.'

The floated quantifier *seys-i* 'three-Nom' in (375) would have to be on the COMPS list, and not on the SUBJ list, because it appears after the subject and the object. Items on the SUBJ list do not appear within VP, and the subject itself is linearly ordered last of the sisters of VP, as I postulated in Section 3.2.1 with the Subject-Final LP Rule to explain phonological phrasing facts and to restrict the number of constituent structures possible for each sentence. If something other than the subject appeared on the SUBJ list, it would have to appear linearly before the subject. Thus the linear position of the quantifier in (375) means it must be on the COMPS list, and we benefit in our current reasoning from the precise formulation of constituent structure in Chapter 3.

Having the quantifier of the subject on the COMPS list, rather than the SUBJ list, would make this quantifier similar to all other adjuncts, which are all added to the COMPS list by the Adjunct Addition lexical rule. Furthermore, in the causative, only the index of the lower subject is shared with the causee, while all COMPS are inherited. Because floating quantifiers can modify the lower subject, as in (376), including them on the COMPS list means no changes are necessary in my account of the causative to include floating quantifier behavior.

(376) Nay-ka haksayng-ul **seys-ul** ttena-key hay-ss-ta
I-Nom student-Acc three-Acc leave-Adv do-Pst-Dec
'I made three students leave.'

The direct case assignment approach would assign accusative case to every NP on the COMPS list with a [CASE *gram*] specification when there is an agentive verb. Since (375) has an agentive verb, this approach has no way to assign nominative case to the quantifier and no way to avoid assigning accusative case to it. This approach cannot simply exclude quantifiers from the case principle by not giving them a [CASE *gram*] specification and relying on quantifiers' sharing the case of their quantified arguments, because the case of the quantified arguments to be shared is specified as [CASE *gram*]. If a quantifier on the COMPS list had a shared [CASE Nom] specification, it could not be satisfied from the COMPS list of an agentive verb due to unification failure of the nominative and accusative case specifications. Thus, the direct case assignment approach runs into serious difficulty with quantifiers of subjects.

The AG-PR-SIS feature unification approach separates the syntactic specification of case marking by verb agentivity from the lexical link of verb agentivity to nominative and accusative case markers. This separation allows us to account for quantifiers on the COMPS list which bear case specifications different from those described in the case principles. In an example like (375), the case principle will assign [AG-PR-SIS +] to the object and to the nominative quantifier. For the object, this specification will unify with the [AG-PR-SIS +] specification on an accusative NP. The quantifier will differ from the object in not having a lexical specification for AG-PR-SIS for either accusative or nominative case.

In the lexicon, no entry for any quantifier will have an AG-PR-SIS specification because the case on quantifiers is never linked to the agentivity of the verb. Selecting out a class of quantifiers in the lexicon is independently necessary for describing their particular behavior when added as adjuncts to a verb. Specifically, quantifiers will have their CASE value identified with the CASE value of the NP they quantify as they are added to the COMPS list of a verb. This will mean that in sentences like (375) the nominative case which the subject bears as a result of the Subject Case Principle will be shared with the quantifier, while the AG-PR-SIS assignment by the Object Case Principle will have no effect on the quantifier. In sentences like (374), the quantifier will share accusative case with the object, with the same [AG-PR-SIS +] specification from the case principle as the nominative quantifier in (375).

Thus, floating quantifiers provide evidence that object case assignment cannot be direct, but rather it must be mediated by AG-PR-SIS feature unification.

4.5.2.2.3 Case-Alternating Adverbials In addition to floating quantifiers supporting the AG-PR-SIS feature unification approach, a second area of support comes from other case alternations which may rely on the same semantic feature as the nominative/accusative object alternation. I will not make an absolute claim that the semantic conditions are the same for all of these alternations, but the conditions appear similar enough that the best approach may be to unify these alternations in a single case principle.[26]

Duration adverbials alternate between optional nominative and optional accusative, as discussed in Section 2.3.2.1, while locative adverbials alternate between *-ey* and *-eyse*, depending on the stativity of the verb. Since stativity was also claimed to be the determining factor for the accusative/nominative alternation on objects, accounting for these case alternations together appears attractive as a broader generalization than separate accounts.[27] Y.-S. Lee and Wechsler (1993) analyze non-stativity as

[26]If the conditions for several alternations are different, but each alternation applies only to COMPS list items, then I would propose that instead of the Object Case Principle unifying the binary feature AG-PR-SIS in both NP and verb (or VP), it would unify a feature grouping together the various items which affected the alternations, such as AGENTIVITY and STATIVITY, so that the values for all of these characteristics would be shared between argument and verb. This higher-level feature, named CASE-ALTERNANTS or some other similar name, would take as its value a *case-alternant* object, which could have a cross-linguistic maximal set of possible features, with subsets of these features possible in each language. This kind of universal, restrictive feature with typological effect is speculation at present, but it could provide a context in which the AG-PR-SIS feature has a larger relevance outside of the Korean data.

[27]Maling (1989) argues that adverbial case depends directly on the stative/non-stative distinction, while case on verbal complements only generally depends on stativity. She gives the example below, in which the duration adverbial *twu sikan-tongan-ul* 'for two hours' bears accusative case as a modifier of the non-stative verbal noun *swuli-ka* combined with the passive auxiliary verb **toy-ess-ta**, while the verbal noun *swuli-ka* is nominative, in contrast.

i	Cha-ka	twu	sikan-tongan-**ul**/*i	swuli-**ka**	toy-ess-ta
	car-Nom	two	hours-during-**Acc**/*Nom	fixing-**Nom**	become-Pst-Dec

'The car got fixed for two hours.'

In my analysis, a verbal noun like *swuli* 'fixing' combines as an X^0 with the passive auxiliary *toy-ess-ta*, using the Lexical Complex Schema instead of Schema 2, the Head-Complement Schema. Thus (i) does not provide a crucial contrast, since my analysis involves full object phrases. It is being a necessary but not sufficient factor for accusative case marking on adverbials. Requiring additional information to unify with accusative adverbials in contrast to accusative arguments would definitely be compatible with my approach. However, for now I will leave these matters for detailed lexical semantic work to determine exactly which factors are responsible for these alternations to future research. Instead, I will discuss them at present as if the same feature, AG-PR-SIS, accounts for them all. If another single semantic feature, such as STATIVE-VERB, accounted for these alternations, my analysis would be easily amended to use the new feature.

Duration adverbials[28] fit into the current account with the mere addition of the assumption that duration adverbials optionally bear the feature [CASE *gram*], and thus receive accusative or nominative case from the Object Case Principle when they unify with a verb. Examples of case-marked duration adverbials are given below.

(377) a. Haksayng-i chayk-ul **sey-sikan-tongan-ul** ilk-ess-ta
student-Nom book-Acc three-hour-during-Acc read-Pst-Dec
'The student read a book for three hours.'

b. Mwun-i **han-sikan-tongan-i** yel-i-e iss-ess-ta
door-Nom one-hour-during-Nom open-Pass-Cmp be-Pst-Dec
'The door remained open for one hour.'

The adverbial in (377a) would have an [AG-PR-SIS +] specification, due to the case principle unifying its specification with that of the agentive verb *ilk-ess-ta* 'read-Pst-Dec' and thus have accusative case. Similarly, the case principle would unify the [AG-PR-SIS −] specification on the nominative adverbial in (377b) with that of the non-agentive verbal complex *yel-i-e iss-ess-ta* 'was open'.

In Chapter 2, I briefly discussed an alternate dialect with the case marking system for duration adverbials given in K. Hong (1991b), where a non-agentive verb

possible that inside verbal complexes and verbal noun-auxiliary complexes different case principles may apply to the X^0's. Thus Maling's work provides no definite reason not to analyze complement object phrases and duration adverbials as having the same accusative/nominative distribution.

[28] Maling (1989) originally discussed case-marked frequency adverbials as having the same distribution, but subsequent work by Y. Kim (1990a) and by S. Kim and Maling (1993) appears to connect the case marking on frequency adverbials to different readings for that adverbial. Thus I will not include frequency adverbials in this discussion.

permits nominative case, and accusative case is always permitted. This dialect could be accounted for by assuming that accusative duration adverbials had no AG-PR-SIS specification, while nominative duration adverbials had an [AG-PR-SIS −] specification.

Thus duration adverbials fit neatly into the current system, assuming they fall under the same semantic classification as objects.

Location adverbials also vary in case according to the stativity of the verb (Vandesande 1968:70–74, 186–7, Patterson 1974). (378a) shows a stative verb with an *-ey* marked locative adverbial, and (378b) shows a non-stative verb with an adverbial bearing *-eyse* case marking.

(378) a. Chayk-i cip-**ey** iss-ta
book-Nom home-Loc.Stat be-Dec
'The book is at home.'

b. Nay-ka cip-**eyse** kongpwu.ha-n-ta
I-Nom house-Loc.NonStat study-Pres-Dec
'I study at home.'

If this alternation is also reduced to the same semantic factor as the nominative/accusative adverbial alternation and the nominative/accusative object alternation, then the strength of the AG-PR-SIS feature-assigning approach is clear. Alternations between different pairs of case markers which share the same determining factor can be accounted for together. Note that since the *-ey* and *-eyse* case markers have semantic content, they assign [CASE *sem*] and not [CASE *gram*] to their NP's. Thus the Object Case Principle would have to assign [AG-PR-SIS ±] to all NP's on the COMPS list, instead of restricting this feature to the [CASE *gram*] NP's. This solution means that NP's which undergo no alternation in case with the agentivity of the verb will bear the AG-PR-SIS feature, though predictions of grammaticality will not be affected by this extra specification.

I conclude this discussion with the single case principle which will account for case marking on nominative and accusative objects, as well as extending to duration and location adverbials, with the removal of the preliminary restriction to only NP's whose CASE value is of sort *grammatical*.

(379) **Object Case Principle**: Unify the AG-PR-SIS value of any NP on the COMP-DTRS list of the mother node with the AG-PR-SIS value of the head.

4.5.2.2.4 Nominative-Marked Focus Phrases In addition to the issues of nominative-marked quantifiers and case-alternating adverbials, nominative-marked focus phrases also raise questions about the application of the Object Case Principle to non-subject elements. I will sketch two possible approaches to their analysis in this section, with minor disadvantages to one approach making the other slightly preferable.

Focus phrases are not the subject of a sentence, and they provide a semantic background for the proposition of the sentence (C. Youn 1990, Hong 1991b, O'Grady 1991). Some examples are given below, with the focus phrases in boldface.

(380) a. **Swuni-ka** kangaci-ka talana-ss-ta
Swuni-Nom puppy-Nom run.away-Pst-Dec
'Swuni's puppy ran away.'

b. I **path-i** ttalki-ka mas-iss-ta
this patch-Nom strawberry-Nom taste-exist-Dec
'It is this patch from which the strawberries are tasty.'

Focus phrases are always nominative, regardless of whether they occur with an agentive verb, as in (380a), or a non-agentive verb, as in (380b). Analyzing focus phrases as adjuncts on the COMPS list, with [CASE *gram*] specification, would predict that their case should vary with the agentivity of the verb. Quantifier phrases constitute a distinct class in the lexicon, so they could have distinct lexical entries with no AG-PR-SIS specification. Focus phrases are not distinguishable from nominative subject or object phrases in their form or individual meaning, merely in their semantic relation to the subject or the entire clause.[29] Thus, for focus phrases to lack an AG-PR-SIS specification for their nominative case marking would be an unmotivated duplication in the lexicon. Thus we want a different solution for nominative focus phrases than for quantifier phrases.

A similar solution, also based in the lexical entries for focus phrases, would distinguish focus phrases from other nominative phrases in the lexicon by declaring the nominative on focus phrases to be a semantic case, instead of a grammatical case. Since focus phrases never participate in any case alternations, which were our grounds for distinguishing grammatical case, and focus phrases always have particular semantic characteristics, this approach is more motivated than merely removing the AG-PR-SIS specification for these phrases. This approach treats the surface identity between the grammatical case nominative and the semantic case nominative as synchronically irrelevant.

A different kind of solution would be to analyze the focus phrases as elements of the SUBJ list instead of the COMPS list. Focus phrases, unlike quantifier phrases, never occur linearly after the subject, as in the ungrammatical examples in (381), so there will be no conflict with other parts of the analysis in making this assumption.

(381) a. * Kangaci-ka **Swuni-ka** talana-ss-ta
puppy-Nom Swuni-Nom run.away-Pst-Dec
'Swuni's puppy ran away.'

b. * Ttalki-ka **i path-i** mas-iss-ta
strawberry-Nom this patch-Nom taste-exist-Dec
'It is this patch from which the strawberries are tasty.'

As elements of the SUBJ list, the focus phrases would receive nominative case just as the subject does when combining with a VP. In order to prevent predicting that the focus phrases would share subject properties with the actual subject, properties

[29] Focus phrases are often distinguishable in their phonological phrasing, because they often phrase together with the following word, when an unfocussed NP would not (Y. Cho 1990). This is another property involving the relation of the focus phrase to the entire sentence, rather than a property distinguishing the focus phrase as a lexical item.

referring to grammatical subject, such as subject honorification and plural copying, would have to be defined as referring to the first item on the SUBJ list, instead of any item on the SUBJ list. One potential problem with this approach is that it analyzes the focus phrase as sister to the subject. If focus phrases are sister to a clause, instead of to the subject and the VP, then this analysis of case would be inappropriate. Although I do not see any definite problems with this solution to nominative focus phrases, this solution makes predictions about constituent structure and the definition of grammatical relations which may or may not be desirable. Without any esthetic or empirical support for those predictions, I prefer not to adopt this position, and instead rely on a separate semantic nominative for focus phrases, until further systematic study of focus phrases makes evidence for the correct analysis clear.

4.5.2.2.5 Subject Nominatives and AGENTIVE-PREDICATE-SISTER

The specification of the AG-PR-SIS feature on both nouns and verbs, with the unification of the verb's value for AG-PR-SIS with the AG-PR-SIS value of all elements of its COMPS list, means that there are several circumstances in which the AG-PR-SIS value is specified without any grammatical consequence. The AG-PR-SIS specifications on all COMPS elements with semantic CASE except locatives marked with *-ey* or *-eyse* will be superfluous. In addition, nominative nouns marked with [AG-PR-SIS −] will have a useful specification when they occur as objects, but not when they occur as subjects. However, the facts that nominative NP's bear AG-PR-SIS specifications regardless of their grammatical function, and that this feature unifies with elements on the COMPS list, can have an unexpected benefit in accounting for the behavior of the honorific subject-only nominative case marker *-kkeyse*. I present the facts concerning this restriction on *-kkeyse* (Youn 1990:50), and then demonstrate how specifying *-kkeyse*-marked NP's with an AG-PR-SIS value of NONE will yield precisely the correct distribution.

In his thesis, C. Youn (1990) discusses two distinct kinds of multiple nominative constructions: sentences with nominative objects and sentences with initial nominative Focus elements. In each of these constructions, only the grammatical subject, determined by various tests, can bear *-kkeyse* instead of a plain nominative.

(382a) provides an example of a nominative object sentence, and (382b) shows that -*kkeyse* cannot alternate with the plain nominative in this example (Youn 1990:217–219).

(382) a. Swuni-ka yenge sensayngnim-**i** philyo.ha-ta
Swuni-Nom English teacher-Nom need-Dec
'Swuni needs an English teacher.'

b. *Swuni-ka yenge sensayngnim-**kkeyse** philyo.ha-ta
Swuni-Nom English teacher-HNom need-Dec
'Swuni needs an English teacher.'

As expected, -*kkeyse* is possible on the subject of such examples, as shown in (383). (383b), with the plain nominative -*i* instead of the honorific nominative -*kkeyse*, is not as respectful to the subject as (383a), but it is also possible.

(383) a. Sensayngnim-**kkeyse** ton-i philyo.ha-si-ta
teacher-HNom money-Nom need-Hon-Dec
'The teacher needs money.'

b. Sensayngnim-**i** ton-i philyo.ha-si-ta
teacher-Nom money-Nom need-Hon-Dec
'The teacher needs money.'

In the second type of multiple nominative construction considered by Youn (1990), it is the second nominative NP which is the grammatical subject, while the first NP is a non-argument nominative-marked Focus. An example of this kind of sentence is given in (384a). The Focus NP cannot be marked with -*kkeyse*, as seen in (384b) (Youn 1990:121). (384c) shows that the honorific nominative -*kkeyse* is impossible on the Focus NP even if the verb has the subject honoring suffix -*si*. These facts lend support to the approach to nominative-marked Focus NP's suggested in the preceding section, in which the Focus nominative is a semantic case. The alternate approach, in which the Focus nominative resulted from the NP occurring on the SUBJ list, would not extend to these -*kkeyse* marking facts.

(384) a. Kim-sensayngnim-**i** ttal-i yeyppu-ta
Kim-teacher-Nom daughter-Nom be.pretty-Dec
'Prof. Kim's daughter is pretty.'

b. *Kim-sensayngnim-**kkeyse** ttal-i yeyppu-ta
Kim-teacher-HNom daughter-Nom be.pretty-Dec
'Prof. Kim's daughter is pretty.'

c. *Kim-sensayngnim-**kkeyse** ttal-i yeyppu-**si**-ta
Kim-teacher-HNom daughter-Nom be.pretty-Hon-Dec
'Prof. Kim's daughter is pretty.'

In these Focus sentences, *kkeyse* is a possible marking for the grammatical subject in these sentences, as seen in (385a). (385b), with the plain nominative -*ka* instead of the honorific nominative -*kkeyse*, is also possible, though it indicates less respect than (385a).

(385) a. Swuni-ka emeni-**kkeyse** phyenchanh-usi-ta
Swuni-Nom mother-HNom be.sick-Hon-Dec
'Swuni's mother is sick.'

b. Swuni-ka emeni-**ka** phyenchanh-usi-ta
Swuni-Nom mother-Nom be.sick-Hon-Dec
'Swuni's mother is sick.'

In order to describe nominative NP's which can only occur on the SUBJ list, and never on the COMPS list, we can rely on the AG-PR-SIS feature, which is unified only with elements on the COMPS list in the Object Case Principle. If the case marker -*kkeyse* is specified with a value for AG-PR-SIS which will not unify with either agentive or non-agentive verbs, then a -*kkeyse*-marked NP will never be able to occur as a nominative object. We can accomplish this specification by giving -*kkeyse* the AG-PR-SIS value "NONE". This specification will be irrelevant to -*kkeyse*-marked subject NP's, just as the [AG-PR-SIS −] value of non-honorific nominative NP's is irrelevant to their functioning as subjects. But in object position, the feature will distinguish the non-honorific *-i/-ka* nominative NP's which can occur as objects of non-agentive verbs from the honorific *-kkeyse* nominative NP's which are impossible as objects of any kind.[30]

4.5.2.2.6 Integrating Object Case into Schemata As a final consideration, let us examine the schemata into which the Object Case Principle can be combined, for direct representation of the fact that Case Principles apply at the moment of subcategorization satisfaction.

Because objects in Korean can occur sister to VP, as well as within VP, an additional complication for describing object case marking is that both the schema for building a VP and the schema for combining the subject and remaining complements together with the VP need to specify grammatical case for the objects satisfied. The separation of Case Principles from the phrase structure schemata makes this complication into simply a matter of superficial detail, while the underlying theory of case presented here is not complicated.

The phrase structure schemata which refer to COMPS are Schema 1 and Schema 2. With the Object Case Principle added to them, they become the variants below.

(386) **Schema 1**: a phrase with DTRS value of sort *head-subj-struc* in which the HEAD-DTR value is a phrasal sign, and the value of AG-PR-SIS of all NP's on the COMP-DTRS list is unified with the AG-PR-SIS value of the HEAD-DTR.

[30]Under this approach, pragmatic inference is responsible for making the plain nominative case markers *-i/-ka* unacceptable on honorific nouns: the fact of using a non-honorific nominative stands out as a choice *not* to use the more expected honorific form. There is no unification failure, merely a Gricean deduction from the choice of words set against the words not chosen. Relying on pragmatic inference for the inappropriateness of the plain nominatives *-i/-ka* on honorific nouns can explain the variation between speakers as to the proper usage of *-kkeyse*. In my data collection, some speakers preferred *-kkeyse* marking on *emeni* 'mother', while others preferred the plain nominative *-ka* on this noun, even though both sets of speakers preferred the inclusion of the subject honorification suffix *-(u)si* on the verb when *emeni* 'mother' was subject. My impression from data collection is that the use of *-kkeyse* is less obligatory than the use of the subject honorification suffix *-(u)si*. Relying on pragmatic inference for *-kkeyse*, while using unification of honorific or non-honorific status for *-(u)si* recognizes this distinction.

(387) **Schema 2**: a phrase with DTRS value of sort *head-comps-struc* in which the HEAD-DTR value is a lexical sign, and the value of AG-PR-SIS of all NP's on the COMP-DTRS list is unified with the AG-PR-SIS value of the HEAD-DTR.

4.5.3 Conclusion: Case Marking in Korean

This section has presented my analysis of case marking in Korean. Lexical specification provides the foundation, with nouns lexically combining with case markers and verbs lexically specifying the CASE of their arguments as being either of sort *grammatical* or *semantic*. Nouns with semantic CASE will unify their CONTENT with that of the verb they combine with, through specification in their MOD value and the Adjunct Addition Lexical Rule. In addition to the information provided by lexical specification, the Subject Case Principle specifies nominative case for all subjects, while the Object Case Principle specifies that the AGENTIVE-PREDICATE-SISTER (AG-PR-SIS) value of the verb is unified with the AG-PR-SIS value of its COMPS, yielding the correct distribution of nominative case on objects of non-agentive verbs and accusative case on agentive verbs. With this picture in mind, we can now examine the case marking facts in causatives.

4.6 Case in Causatives

With the background of the distinction between semantic and grammatical case, and of the case principles governing nominative and accusative case, we are now ready to examine how the general properties of case account for the specific facts of case marking in causative sentences.

I divide the causative case marking facts into three main classes: arguments bearing the same case in causatives that they bear in simple sentences, arguments of stative verbs which bear different case marking due to the non-stative causative, and causees, whose case marking has been a major focus of the literature on causatives. The following sections examine each of these classes of case marking facts, together with their analysis within my approach to Korean case marking.

4.6.1 Simple Case in Causatives

The first class of case marking facts to examine is that of arguments which receive the same case marking in causative sentences as in simple sentences. It is important to ascertain that nothing in the analysis of the causative interacts with case principles and specifications in such a way as to predict incorrect cases for these arguments. In this section, I will discuss examples with grammatical and semantic case, including examples of case alternations.

The first example we consider involves grammatical case. If a simple sentence has an object with accusative case marking, that object will remain accusative in a causative sentence, as illustrated in (388).

(388) a. Ai-ka chayk-**ul** ilk-ess-ta
child-Nom book-Acc read-Pst-Dec
'The child read a book.'

b. Nay-ka ai-lul chayk-**ul** ilk-key hay-ss-ta
I-Nom child-Acc book-Acc read-Adv do-Pst-Dec
'I made the child read a book.'

In the simple sentence in (388a), the accusative case on *chayk-ul* 'book-Acc' results from the interaction of several factors, starting with the lexical specification of the verb *ilk-ess-ta* 'read' that it is an agentive verb taking an object with grammatical case. In the syntax, the Object Case Principle unifies the [AG-PR-SIS +] feature of the verb with the NP's on the COMPS list, and only an accusative noun will match the verb's specification of grammatical case and the case principle's specification of [AG-PR-SIS +].

The accusative case on the lower object *chayk-ul* in the causative sentence in (388b) will also result from several factors. The lexical specification of the lower verb *ilk-ess-ta* that it has an object with grammatical case on its COMPS list will be inherited to the higher causative verb *hay-ss-ta* 'did'. When the argument NP combines with the verb in the syntax, the Object Case Principle performs the same unification of the [AG-PR-SIS +] feature on the verb and on the NP's on its COMPS list as it did in the simple sentence. Once again, only an accusative NP qualifies for both the verb's specification of grammatical case and the case principle's specification of [AG-PR-SIS +]. Thus the only change in the causative sentence relevant to case marking is that the lower verb's lexical specification of grammatical case on its object is inherited by the causative auxiliary. Every other factor in this accusative case marking situation remains the same.

Turning to examples with semantic case, we see that the case marking system developed for simple sentences covers arguments with semantic case in causatives as well. The sentences in (389) give us examples of a goal NP with the semantic case marker -*ulo* 'to'.

(389) a. Ai-ka cip-**ulo** talli-n-ta
child-Nom house-to run-Pres-Dec
'The child runs to the house.'

b. Holangi-ka ai-lul cip-**ulo** talli-key hay-ss-ta
tiger-Nom child-Acc house-to run-Adv do-Pst-Dec
'The tiger made the child run to the house.'

In both sentences in (389), the NP with semantic case, *cip-ulo* 'to the house', modifies the verb *talli-* 'run'. The NP will be on the COMPS list of *talli-* 'run' in its lexical entry, and inherited syntactically to the COMPS list of *ha-ta* in the causative sentence. As the lexical rule of Adjunct Addition added the NP to the COMPS list, it identified the MOD value of the semantically case-marked NP *cip-ulo* 'to the house' with the HEAD and CONTENT values of the verb *talli* 'run', and thus unified the CONTENT of the NP with that of the verb. When the NP is inherited to the higher COMPS list of *ha-ta*, it still retains the original identification of its CONTENT value with that of *talli* 'run' and does not add any new identification with *ha-ta*. Thus the fact that the NP becomes a syntactic sister of the verbal complex does not prevent it from contributing its specific semantic information to the CONTENT of the lower verb.

The division of information specification between lexicon and syntax allows for semantically case-marked NP's to contribute information to lower verbs in causatives without predicting that these NP's would also contribute information to syntactically embedded lower clauses.

If the MOD feature of the noun unified in the syntax with the HEAD and CONTENT values of the verb it combined with, and unified the CONTENT of the noun with the CONTENT of the verb sister to it, then no semantically case-marked NP's would be able to modify the lower verb in a causative, because the NP's would be sister to the verbal complex headed by the higher, causative verb. Because the Adjunct Addition Lexical Rule performs this unification, we are able to account for semantically case-marked NP's modifying either the higher or lower verb in a causative, depending on which verb the lexical rule has applied to.

If, instead of lexical unification of the MOD feature, we assumed that the MOD feature could unify with the HEAD and CONTENT of the verb it combined with or any HEAD and CONTENT values embedded within that verb's SUBJ or COMPS lists, we would predict that semantically case marked NPs would modify not only the lower verb in the causative but also lower embedded clauses in other places. This prediction is incorrect, as seen in (390).

(390)	*Nay-ka	**chinkwu-eykeyse**	[Swuni-ka	phyenci-lul	pat-ess-ta-ko]
	I-Nom	friend-from	Swuni-Nom	letter	receive-Pst-Dec

mal.hay-ss-ta
say-Pst-Dec
'I said that Swuni received a letter from a friend.'

(390) is the same kind of sentence used to argue against long-distance scrambling, when we were considering what kind of grammar schemata were appropriate. In the current discussion, this sentence would require the semantically case-marked NP to be on the COMPS list of the higher verb, and thus not the result of long-distance scrambling. The new factor under consideration is whether the MOD feature would allow the NP to combine its CONTENT with the CONTENT of an embedded verb. The ungrammaticality of this example shows that the unification of the MOD feature

of the noun with the verb's HEAD and CONTENT values in the Adjunct Addition Lexical Rule is the correct choice. Semantic case thus is not expected to interact with the causative in any way beyond the simple inheritance of COMPS lists. The additional examples below show the same fact of no change in semantic case in the causative.

(391) shows the semantically case marked instrumental phrase *yenphil-lo* 'with a pencil' in a simple sentence and a causative sentence.

(391) a. Ai-ka yenphil-**lo** ss-ess-ta
child-Nom pencil-with write-Pst-Dec
'The child wrote with a pencil.'

b. Nay-ka ai-lul yenphil-**lo** ssu-key hay-ss-ta
I-Nom child-Acc pencil-with write-Adv do-Pst-Dec
'I made the child write with a pencil.'

For lexical causatives as well, my analyses of case and of causatives predict the correct range of facts for all the arguments which have the same case in the causative as in simple sentences.

Grammatical accusative case on the object of a verb in a simple sentence is also found on the corresponding object in a lexical causative of that verb, as seen in (392) below.

(392) a. Ai-ka pap-**ul** mek-ess-ta
child-Nom rice-Acc eat-Pst-Dec
'The child ate the rice.'

b. Emeni-ka ai-lul pap-**ul** mek-i-ess-ta
mother-Nom child-Acc rice-Acc eat-Caus-Pst-Dec
'The mother fed the child rice.'

As discussed above, accusative case results from the lexical specification of an agentive verb that its object takes grammatical case, and the unification of that information with the [AG-PR-SIS +] and *grammatical*-type [CASE Acc] features of the object NP through the Object Case Principle in the syntax. The lexical specification of a simple verb stem like *mek* 'eat' will be inherited by the lexical causative verb stem *mek-i* 'feed', due to the specifications of the lexical causative suffix *-i*. The Case Principle will then apply in the same way for (392b) as for (392a). The fact that there is an additional object with grammatical case in (392b), *ai-lul* 'child-Acc' has no effect on the grammatical case on *pap-ul* 'rice-Acc', because the Case Principle specifies [AG-PR-SIS +] on all NP's on the COMPS list, and thus all NP's with grammatical case on the COMPS list will only be compatible with accusative case.

NP's with semantic case also follow the same principles in lexical causatives as in simple sentences and in periphrastic causatives. An instrumental NP with the semantic case marker *-lo* 'with' in a simple sentence will bear the same case marker in the corresponding lexical causative, as seen in (393).

(393) a. Ai-ka yenphil-**lo** ss-ess-ta
child-Nom pencil-with write-Pst-Dec
'The child wrote with a pencil.'

b. Nay-ka ai-lul yenphil-**lo** ss-iwu-ess-ta
I-Nom child-Acc pencil-with write-Caus-Pst-Dec
'I made the child write with a pencil.'

Because the Adjunct Addition lexical rule unifies the MOD value of the semantically case marked NP with the HEAD and CONTENT values of the verb in the lexicon, thereby unifying the CONTENT's on the NP and the verb, an adjunct modifying a lower verb stem as in (393b) will add its semantic information to that stem just as it would for a simple verb as in (393a). The lexical rule adds the NP to the COMPS list of the lower verb stem and unifies its MOD value with the HEAD and CONTENT of the lower verb, thereby unifying the CONTENT of the semantically marked NP with the CONTENT of the verb. If this verb stem later forms part of a causative, the semantic CONTENT is unaffected, and the COMPS list is inherited to the new complex verb headed by the causative affix.

Thus the analysis presented for grammatical and semantic case is able to account for the many instances in which the same case marking appears on arguments in simple verbs as in the corresponding periphrastic and lexical causatives.

4.6.2 Case in Causatives of Statives

In causatives of statives, we see instances where case assignment on certain phrases differs from the case on corresponding phrases in simple sentences. Because certain phenomena rely on stativity in the syntax, the combination of non-stative causatives with stative verbs provides a window onto exactly which information derives from which source.

There is a certain awkwardness to the sentences in this section, as the semantics of causing a state need to involve causing the inception of that state, as well as some duration of the state afterward.[31] Causing an action is more natural, because actions generally involve a beginning and an end even without an explicit reference to causation. To the degree that speakers have clear judgments about these sentences, however, they provide valuable evidence of linguistic structure which we would not want to overlook. Furthermore, other accounts of causatives have used examples with causatives of statives, such as (394) from E. Cho (1988:168). Thus, it is appropriate to include this kind of data in developing an analysis of the causative and of case.

(394)	Na-nun	Inho-lul/ka	kippu-key	hay-ss-ta
	I-Top	Inho-Acc/Nom	be.happy-Cmp	do-Pst-Dec
	'I caused Inho to be happy.'			

The following sections discuss the three different ways in which stativity is relevant: on objects with grammatical case, on duration adverbials with grammatical case, and on location adverbials with the semantic cases *-ey* and *-eyse*.

[31]In fact, explicitly indicating causation of the inception of a state through the causative of an inchoative of a stative, e.g. *coh-a ci-key ha-ta* 'like-Cmp become-Adv do-Dec', will produce more natural Korean sentences than a direct causative of a stative, e.g. *coh-key ha-ta* 'like-adv do-Dec'. However, the causative of inchoative of stative sentences do not provide the same tightly controlled conditions for checking factors responsible for case marking, and thus cannot take the place of the examples in this section.

4.6.2.1 Causatives of Nominative Object Verbs

Causatives provide us an opportunity to sort out the difference between syntactic and semantic properties, because they are syntactically monoclausal but semantically biclausal. If the nominative case on objects of statives were based purely on the semantics of the head verb, then occurring in a causative would have no effect on the case marking of the object. Semantically the object and its head verb have the same relation as in a simple sentence. Syntactically, however, the object is now satisfied from the COMPS list of the non-stative causative verb, rather than from the COMPS list of the stative verb, as in a simple sentence.

In the section on simple case in causatives, we reviewed how an object of a non-stative verb in a causative can receive the grammatical case of accusative. With a stative verb in a causative, the prediction is the same. Because grammatical case for objects depends on the stativity of the verb sister to the object, the stativity of the lower verb cannot come into play in determining the object's case. Any object with grammatical case marking in a causative will be predicted to be accusative, regardless of what case the object would bear in a simple sentence.

The actual data on this question are less clear than the predictions. While the contrast between accusative and nominative case for objects of stative verbs in simple sentences is very clear, as seen in the examples in (395) and (396), judgments of causatives of statives are murkier.

(395) a. Nay-ka Swuni-ka coh-ta
I-Nom Swuni-Nom like-Dec
'I like Swuni.'

b. *Nay-ka Swuni-lul coh-ta
I-Nom Swuni-Acc like-Dec
'I like Swuni.'

(396) a. Nay-ka chayk-**i** manh-ta
I-Nom book-Nom be.many-Dec
'I have a lot of books.'

b. *Nay-ka chayk-**ul** manh-ta
I-Nom book-Nom be.many-Dec
'I have a lot of books.'

In causatives of statives, some speakers accept both accusative and nominative marking for the object, while other speakers accept neither accusative nor nominative marking on the object, finding the sentence entirely ungrammatical. In general, speakers find the accusative marking somewhat worse than the nominative marking, as reflected by the single vs. double question mark rating I list for the two examples below.

(397) a. ?Maswulsa-ka na-lul Swuni-**ka** coh-key hay-ss-ta
sorcerer-Nom me-Acc Swuni-Nom like-Adv do-Pst-Dec
'The sorcerer made me like Swuni.'

b. ??Maswulsa-ka na-lul Swuni-**lul** coh-key hay-ss-ta
sorcerer-Nom me-Acc Swuni-Acc like-Adv do-Pst-Dec
'The sorcerer made me like Swuni.'

(398) a. ?Maswulsa-ka na-lul chayk-**i** manh-key hay-ss-ta
sorcerer-Nom me-Acc book-Nom be.many-Cmp do-Pst-Dec
'The sorcerer made me have a lot of books.'

b. ??Maswulsa-ka na-lul chayk-**ul** manh-key hay-ss-ta
sorcerer-Nom me-Acc book-Acc be.many-Cmp do-Pst-Dec
'The sorcerer made me have a lot of books.'

We can see that the problem with the causatives with nominative objects in (397a) and (398a) is not due to their content being unacceptable, because a parallel biclausal causative sentence, as in (399), where the causee is marked nominative, allows a nominative object.

(399) Maswulsa-ka [nay-ka Swuni-**ka** coh-key] hay-ss-ta
wizard-Nom I-Nom Swuni-Nom like-Adv do-Pst-Dec
'The wizard made me like Swuni.'

The degraded acceptability of the nominative-marked objects in causatives follows from my account. However, my account fails to predict the judgment of the majority of speakers that accusative-marked objects will be ungrammatical in causatives of statives. I choose not to revise my account on the basis of this fact because the overall pattern of judgments cannot be explained neatly in any possible analysis that I see. The key fact is that several speakers rated both accusative and nominative the same, either both grammatical or both ungrammatical.[32]

Any analysis based either solely on the semantic property of which verb's relation the object played a role in, or solely on the syntactic property of which verb the object is sister to, would predict opposite judgments for the accusative and nominative case markings. An account in which both syntactic and semantic properties jointly determined the case marking possibilities would be able to predict ungrammaticality for both accusative and nominative objects in causatives of statives, where the syntactic and semantic criteria do not coincide. However, this position would mean that the non-stative verbal complex forms of psych verbs, such as *coh-a ha-ta* 'like', would be predicted also to have no acceptable case marking for their objects. This is not true, as seen in the examples below, which formed part of the basis for our constituent structure-based case marking account.

(400)	a.	Na-nun	nokcha-**ka**	**coh**-ta
		I-Top	green.tea-**Nom**	like-Dec
		'I like green tea.'		

[32]Young-mee Yu Cho (p.c.) finds (i) acceptable, and suggests that the ability to mark the causee with the dative *-eykey* may influence the acceptability of the accusative *-ul* on the lower object.

(i)	Maswulsa-ka	na-eykey	ton-**ul**	iss-key	hay-ss-ta
	sorcerer-Nom	me-Acc	money-Acc	have-Adv	do-Pst-Dec
	'The sorcerer made me have money.'				

While Cho does not accept *-eykey* on the causees in (397), other Korean consultants found no difference in acceptability of *-eykey* or *-lul* on the causee of *coh-ta* 'like'. Thus, the data still appear to resist a simple generalization, but this example reinforces the evidence that accusative case is possible in a causative of a stative, a fact which is completely unexpected under biclausal accounts.

b. Na-nun nokcha-**lul** **coh**-a ha-n-ta
I-Top green.tea-**Acc** like-Cmp do-Pres-Dec
'I like green tea.'

I know of no possible account which would predict the result of both accusative and nominative case marking being acceptable in causatives of statives, when no simple sentences allow both case markings. Under any assumptions of underspecified factors interacting, the addition of more information in a more complex sentence should restrict the possible outcomes, rather than extend them.

Thus the data do not argue clearly for any alternative analysis, so I will maintain my current position. My account explains the lowered acceptability of nominative objects in causatives of statives, and leaves the unacceptability of accusative objects to performance factors such as local interference of the stative verb with the more distant head of the verbal complex.

4.6.2.2 Causatives with Duration Adverbials

The case marking possibilities on duration adverbials also reflect the stativity of the head they combine with, providing us with another set of interesting facts about causatives, based entirely on our existing analysis of case.

In the general case marking section, we discussed how duration adverbials bear optional Nominative case when sister to a stative verb, as in (401), while they bear optional Accusative case when sister to a non-stative verb, as in (402).

(401) Haksayng-tul-i han-sikan-tongan-**i**/*-**ul** kipp-ess-ta
student-Plur-Nom one-hour-during-Nom/*Acc be.happy-Pst-Dec
'The students were happy for an hour.'

(402) Haksayng-i chayk-ul **sey-sikan-tongan-ul** ilk-ess-ta
student-Nom book-Acc three-hour-during-Acc read-Pst-Dec
'The student read a book for three hours.'

These facts follow from the Object Case Principle, which unifies the AG-PR-SIS value of the verb with the AG-PR-SIS value of the duration adverbs on the COMPS list with optional grammatical case. Duration adverbials with nominative case will have an [AG-PR-SIS −] specification, and thus be appropriate with stative verbs as in (401), which have the same [AG-PR-SIS −] value. Accusative case marking on duration adverbials will carry an [AG-PR-SIS +] specification, for unification with non-stative verbs, as in (402).

Because causatives of statives involve a single verbal complex headed by the non-stative causative auxiliary, duration adverbials modifying a stative verb are sister to the non-stative verbal complex. Our analysis of case predicts that these adverbials will bear the case appropriate for sisters of non-stative heads, and the causative facts bear this prediction out. In (403), only the accusative marking is possible on the duration adverbial, and not the nominative case that was the only possibility in the simple sentence in (401).

(403) Sensayngnim-kkeyse hyukang ha-si-n sasil-i haksayng-tul-ul
Teacher-HNom skip.lecture do-Hon-Pst fact-Nom student-Plur-Acc
myech-sikan-**ul**/***i** [kippu-key ha-si-ess-ta]
several-hour-**Acc/*Nom** be.happy-Adv do-Hon-Pst-Dec
'The fact that the teacher skipped lecture made the students happy for several hours.'

Lexical causatives involve a single non-stative verb, so our case analysis predicts that they will follow the same pattern as periphrastic causatives, and only permit accusative case on duration adverbials, even when those adverbials modify a stative verb root. (404) gives evidence in support of this position.

(404) Yang-pwumo-nim-kkeyse sipphal-nyen-tongan-**ul/*-i** koa-lul
foster-parent-Hon-Nom 18-year-during-Acc/*-**Nom** orphan-**Acc**
kh-iwu-si-ess-ta
be.big-Caus-Hon-Pst-Dec
'The foster parents raised orphaned children for eighteen years.'

The lexical causative *kh-iwu-si-ess-ta* 'raise/cause to get big' involves the causative suffix *-iwu* added to the verb stem *kh-* 'be big' (K. Hong 1991b:189). (405)

demonstrates that a simple sentence with the verb *kh-uta* 'be big' would permit only nominative duration adverbials.[33]

(405) Koa-ka sipphal-nyen-tongan-**i**/*-**ul** kh-ess-ta
orphan-Nom eighteen-year-during-Nom/*Acc be.big-Pst-Dec
'The orphans were big for eighteen years.'

Thus, for duration adverbials in both lexical and periphrastic causatives, our existing analysis of case predicts exactly the facts we find in causatives of statives, precisely because the structure of the causative makes all arguments of the lower verb sister to the non-stative verbal complex.

In the alternate dialect with respect to duration adverbials where accusative case is always permitted, while nominative case is restricted to sisters of non-agentive verbs (K. Hong 1991b), the possibility of accusative case in causatives of statives is not unusual, because accusative case is always possible. However, the impossibility of nominative case on duration adverbials in causatives of statives is the critical fact. Speakers of this dialect do not permit nominative case on duration adverbials in examples such as (403) and (404), and thus provide equivalent data to the main dialect described here.

4.6.2.3 Causatives with Locative Adverbials

The third stativity-based case alternation involves locative phrases, which bear *-ey* marking when modifying and sister to statives, and *-eyse* marking when modifying and sister to non-statives (Vandesande 1968:70–74, 186–187). Examples are given below.[34]

[33]The meaning of (405) could refer to a situation in which the orphans had a disease which caused them to lose height at a certain point of life, or to a situation in which the orphans were the tallest people in their community for eighteen years, but lost their comparative height advantage when several taller people moved into their neighborhood.

[34](406a) may sound slightly more natural with the topic marker *-nun* added, to form the NP *tosi-ey-nun* and emphasize the contrast of this location compared to others. I am omitting the topic marker here in order to present the *-ey*/*-eyse* contrast more clearly.

(406) a. Kil-i tosi-ey cop-ta
road-Nom city-Loc.Stat be.narrow-Dec
'The roads in the city are narrow.'

b. Nay-ka cip-**eyse** kongpwu ha-n-ta
I-Nom house-Loc.NonStat study do-Pres-Dec
'I study at home.'

In the earlier discussion of locative case, we focussed on how the same Object Case Principle governing nominative and accusative case on objects as well as duration adverbials, accounted for the distribution of locative adverbials in stative and non-stative sentences. When we look at causative sentences, we see that the situation is slightly more complex for locative adverbials than for the nominative/accusative alternations.

If locative adverbials followed the same pattern as objects and duration adverbials, we would expect to see that locative adverbials would bear the non-stative variant in causatives of statives, due to selecting the variant based on syntactic sisterhood rather than semantic modification. However, in a causative of a stative, a locative adverb is unacceptable with either variant of *-ey* or *-eyse*. This fact is shown in (407).

(407) a. *Imkum-nim-kkeyse kil-ul tosi-**ey** cop-key
King-Hon-HNom road-Acc city-Loc.Stat be.narrow-Adv
ha-si-ess-ta
do-Hon-Pst-Dec
'The king made the roads in the city narrow.'

b. *Imkum-nim-kkeyse kil-ul tosi-**eyse** cop-key
King-Hon-HNom road-Acc city-Loc.NonStat be.narrow-Adv
ha-si-ess-ta
do-Hon-Pst-Dec
'The king made the roads in the city narrow.'

Notice that there is nothing wrong semantically with the rest of the sentence, since it is fine with the locative information expressed as a genitive phrase modifying the direct object, as seen in (408).

(408)

Imkum-nim-kkeyse	**tosi-uy**	kil-ul	cop-key	ha-si-ess-ta
King-Hon-HNom	city-Gen	road-Acc	be.narrow-Adv	do-Hon-Pst-Dec

'The king made the city's roads narrow.'

A second point to note about (408) is that the genitive marker *-uy*; which is a diphthong in standard Korean starting in a central, unrounded vowel and ending in a high, front unrounded vowel; can sound like the locative *-ey*, a mid front unrounded vowel, in colloquial speech (Young-mee Yu Cho p.c.). Thus, it is problematic to investigate the word order given in (409), where the locative precedes the object, since a possibly phonetically identical sentence is good. Normal scrambling ought to permit the locative phrase to move to other locations in the sentence, so the ungrammaticality of (407) is important to focus on.

(409)

Imkum-nim-kkeyse	**tosi-ey**	kil-ul	cop-key	ha-si-ess-ta
King-Hon-HNom	city-Gen	road-Acc	be.narrow-Adv	do-Hon-Pst-Dec

'The king made the city's roads narrow.'

To explain the ungrammaticality of both *-ey* and *-eyse* in causatives of statives, we need to rely on both the syntactic sisterhood of the locative adverbial to a non-stative verbal complex, as well as the semantic modification of the adverbial of a stative verb. These facts bring out the necessity for a syntactic AG-PR-SIS feature in addition to any semantic properties in the case analysis. Because *-ey* and *-eyse* are semantic, not grammatical, case, they do involve unification with the content of the verb they modify.

Although the non-stative variant *-eyse* would unify through the Object Case Principle with the [AG-PR-SIS +] specification on the causative verbal complex, it would fail to unify its CONTENT with the CONTENT of the lower, stative verb, as required by the Adjunct Addition Lexical Rule, and thus no acceptable sentence can result with an *-eyse*-marked locative. (410) gives a possible lexical entry, with a crude representation of how *-eyse*'s MOD value would specify that *-eyse* required a non-stative verb. In simple sentences, this semantic specification would duplicate the syntactic [AG-PR-SIS ±] specification. In complex sentences, we see that this particular case alternation involves both syntactic and semantic components. This property makes both locative case variants ungrammatical in instances of mismatch between syntax and semantics, as in causatives.

(410)

$$\left[\begin{array}{ll} \text{CAT} & \left[\begin{array}{ll} \text{HEAD} & \left[\begin{array}{ll} \textit{noun} & \\ \text{MOD} & \left[\text{CONTENT } \boxed{2} \left[\begin{array}{l} \textit{non-stative} \\ \text{LOCT}|\text{SPATIAL } \boxed{1} \end{array}\right]\right] \\ \text{AG-PR-SIS} & + \end{array}\right] \\ \text{COMPS} & \left\langle \left[\begin{array}{l} \text{NFORM stem} \\ \text{A-INDEX } \boxed{1} \\ \text{CONTENT } \boxed{2} \end{array}\right] \right\rangle \\ \text{NFORM} & \text{-eyse} \end{array}\right] \\ \text{CONTENT} & \boxed{2} \end{array}\right]$$

The non-stative *-ey* locative marker would unify with the semantic content of the lower verb, but fail to unify with the [AG-PR-SIS +] feature of the causative verbal complex. A lexical entry for *-ey* is given below.

(411)

$$\left[\begin{array}{ll} \text{CAT} & \left[\begin{array}{ll} \text{HEAD} & \left[\begin{array}{ll} \textit{noun} & \\ \text{MOD} & \left[\text{CONTENT } \boxed{2} \left[\begin{array}{l} \textit{stative} \\ \text{LOCT}|\text{SPATIAL } \boxed{1} \end{array}\right]\right] \\ \text{AG-PR-SIS} & - \end{array}\right] \\ \text{COMPS} & \left\langle \left[\begin{array}{l} \text{NFORM stem} \\ \text{A-INDEX } \boxed{1} \\ \text{CONTENT } \boxed{2} \end{array}\right] \right\rangle \\ \text{NFORM} & \text{-ey} \end{array}\right] \\ \text{CONTENT} & \boxed{2} \end{array}\right]$$

Patterson (1974:26–27) briefly discusses an issue similar to this, in the context of adverb ambiguity between the higher and lower clause. She describes how a locative adverb marked with *-eyse* can be ambiguous between modifying the lower verb stem or the higher causative verb in a lexical causative sentence like (412).

(412) Emeni-ka **pang-eyse** ai-eykey pap-ul mek-i-ess-ta
Mother-Nom room-in child-Dat rice-Acc eat-Caus-Pst-Dec
'Mother made the child eat the rice in the room.'
or 'Mother fed the child rice in the room.'

She contrasts this ambiguity with a single possible reading for a lexical causative of a stative, with an *-ey*-marked locative modifying the lower predicate, as seen in (413). The lexical causative *nel-li-ta*[35] consists of the causative suffix *-li* added to the stative verb stem *nel-ta* 'spread'. *nel-ta* 'spread' subcategorizes for a location where things are spread out, and thus *matang-ey* 'in the garden' clearly modifies the *nel-* 'spread' stem, rather than the entire lexical causative *nel-li-ess-ta* 'cause to spread'.

(413) Emeni-ka sikmo-eykey **matang-ey** ppallay-lul nel-li-ess-ta
Mother-Nom maid-Dat garden-in laundry-Acc spread-Caus-Pst-Dec
'Mother made the maid spread the laundry in the garden.'

If the *-ey* marking in (413) is the same *-ey* which alternates with *-eyse* based on the stativity of the verb, then the contrast Patterson describes would indicate an alternate dialect which bases the contrast only on semantics, and does not include the [AG-PR-SIS ±] feature in the lexical entries of *-ey* or *-eyse*. In this dialect, locative adverbials would not have any distinct properties from other semantically case-marked adverbials in causatives.

However, the example in (413) does not fit neatly into the current account as grounds for a purely semantic account of the *-ey*/*-eyse* alternation. An object of the verb *nel-ta* 'spread' bears accusative, not nominative, case, as seen below in (414).

(414) Sikmo-ka ppallays.cwul-ey **os-ul** nel-ess-ta
maid-Nom clothesline-Loc clothes-Acc spread-Pst-Dec
'The maid hung the clothes on the clothesline.'

[35]Not all speakers accept *nel-li-ta* as a lexical causative; for some, this word can only be a lexical passive.

Furthermore, hanging clothes would be an event with a starting point with no clothes on the clothesline, and an ending point with some number of clothes on the clothesline, which does not appear to fit standard notions of states. Describing *nel-ta* 'spread' as stative does not appear to be correct to me. Instead of being the stative variant of *-eyse*, the *-ey* in (413) and (414) is more likely to be the *-ey* used for directional goals, as in the examples below in (415).

(415) a. Nay-ka cip-**ey** tol-a ka-ss-ta
I-Nom home-Dir turn-Cmp go-Pst-Dec
'I returned home.'

b. Nay-ka pang-**ey** tul-e ka-ss-ta
I-Nom room-Dir enter-Cmp go-Pst-Dec
'I entered the room.'

The directional *-ey* in (415) would most likely be related to the stative locational *-ey* in a more complete semantic analysis; however, the directional *-ey* clearly has different syntactic properties from the locational *-ey*, and does not alternate with a hypothetical directional *-eyse*.

As a final piece of evidence against considering the *-ey* in (413) as the stative variant of a locational case marker, consider the example in (416), where a locational *-eyse* can be added to the sentence in (413).[36]

(416) Emeni-ka sikmo-eykey **cip-eyse** **matang-ey** ppallay-lul
Mother-Nom maid-Dat home-Loc garden-in laundry-Acc
nel-li-ess-ta
spread-Caus-Pst-Dec
'Mother made the maid spread the laundry in the garden at home.'

Thus, Patterson's example in (413) is not likely to bear directly on the issue of case marking in causatives of statives, and we should not assume the existence of the alternate dialect regarding the *-ey*/*-eyse* alternation based on it.

[36] I thank Young-mee Yu Cho for this point.

In conclusion, location adverbials do not appear to occur modifying the lower verb in a causative of a stative, regardless of which case alternant they bear, *-ey* or *-eyse*. This fact follows from the CONTENT unification of the semantically case marked nouns with the verb they modify, combined with the same [AG-PR-SIS $\pm$] unification between COMPS arguments and the verbal head which explains the distinctive case facts about objects with grammatical case and about duration adverbials in causatives of statives. These three kinds of alternations show us the subtle ways different principles of grammar can interact, with causatives of statives providing a particularly interesting mismatch between semantic and syntactic relations.

Notice also that a purely lexical case-marking account would have to specify the causative verb *ha-ta* as requiring not only that its object(s) and duration adverbials be accusative, rather than nominative, but also that *ha-ta* can never inherit locative adverbials from stative verbs. Preventing locative adverbials from being inherited only from stative verbs would make this restriction appear to be an idiosyncratic property of the causative auxiliary, instead of the result of interacting general syntactic and semantic properties which we have seen in this section, under an account where case is not completely specified until an NP is satisfied from a verb's SUBJ or COMPS list.

4.6.3 Causee Case Facts

The third class of causative case marking facts we will examine here has been the focus of most work on causative case, namely, the cases borne by the causee. For periphrastic causatives, the possible cases for the causee are nominative, dative, and accusative, as seen in (417).

(417) a. Nay-ka [ai-**ka** chayk-ul ilk-key] hay-ss-ta
I-Nom child-Nom book-Acc read-Adv do-Pst-Dec
'I made the child read the book.'

b. Nay-ka ai-**eykey** chayk-ul [ilk-key hay-ss-ta]
I-Nom child-Dat book-Acc read-Adv do-Pst-Dec
'I made the child read the book.'

c. Nay-ka ai-**lul** chayk-ul [ilk-key hay-ss-ta]
I-Nom child-Acc book-Acc read-Adv do-Pst-Dec
'I made the child read the book.'

For lexical causatives, the possible cases the causee may bear are dative and accusative, as seen in (418), with nominative case being ungrammatical, as shown in (419).

(418) a. Nay-ka ai-**eykey** chayk-ul ilk-hi-ess-ta
I-Nom child-Dat book-Acc read-Caus-Pst-Dec
'I made the child read the book.'

b. Nay-ka ai-**lul** chayk-ul ilk-hi-ess-ta
I-Nom child-Acc book-Acc read-Caus-Pst-Dec
'I made the child read the book.'

(419) *Nay-ka ai-**ka** chayk-ul ilk-hi-ess-ta
I-Nom child-Nom book-Acc read-Caus-Pst-Dec
'I made the child read the book.'

The difference between periphrastic and lexical causatives with regard to the acceptability of nominative case on the causee is due to the biclausal embedding structure in the periphrastic causative, which has a nominative subject of the lower clause. Evidence presented in Chapter 2 demonstrated that periphrastic causatives with nominative causees have biclausal structures, and cannot be analyzed as monoclausal. The monoclausal verbal complex structure in the periphrastic causative allows the same case marking possibilities as the lexical causative, namely accusative and dative.

Because a causee bearing nominative case is the subject of its clause, its case marking follows from the same principles and specifications as any subject. On the SUBJ list of the verb, *ilk-key* in (417a), the causee will be specified as [CASE *gram*], i.e. bearing grammatical case. When the causee is satisfied from the SUBJ list according to Schema 1, the Subject Case Principle adds the specification that the grammatical case borne by the subject, i.e. the causee, is nominative.

The specification of accusative and dative case for the causees of periphrastic and lexical causatives involves semantic issues of permission and coercion, as well as syntactic issues concerning the transitivity of the lower verb. I will examine these issues in the following sections, and present my account of case marking of accusative and dative causees. In the final part of this discussion of causee case, I will discuss the possible contribution which case stacking facts can make to the body of evidence on causatives.

4.6.3.1 Semantic Differences

Many accounts of the Korean causative describe a semantic difference between sentences with accusative causees and those with dative causees (Patterson 1974:38–40, S. Song 1988:203–206, O'Grady 1991:178–179). In general, dative causees are associated with control over the caused action, in a more permissive kind of causative. Accusative causees are associated with a more involuntary, coerced action. Some accounts, such as H. Lee (1985), include nominative causees as a further semantic contrast, with the nominative causees having even more independence and freedom than the dative causee. Lee provides the following examples with English translations reflecting the semantic differences between the sentences varying only in causee case marking.

(420) a. Apeci-nun ai-**lul** matang-eyse nol-key hay-ss-ta
Father-Top child-Acc yard-Loc play-Adv do-Pst-Dec
'The father *forced/commanded* the child to play in the yard.'

b. Apeci-nun ai-**eykey** matang-eyse nol-key hay-ss-ta
Father-Top child-Dat yard-Loc play-Adv do-Pst-Dec
'The father *told/asked* the child to play in the yard.'

c. Apeci-nun ai-**ka** matang-eyse nol-key hay-ss-ta
Father-Top child-Nom yard-Loc play-Adv do-Pst-Dec
'The father *arranged for/permitted* the child to play in the yard.'

I. Yang (1972:207) takes a position against any kind of strong distinction between dative and accusative causees, stating that the following examples show no meaning difference, despite the dative and accusative causees. He argues that these sentences cannot be distinguished as coercive vs. permissive, because the coercive modifier *ekci-lo* 'by enforcement, against one's will' is compatible with a dative causee, as in (421a), just as with the accusative causee in (421b).

(421) a. John-i Mary-**eykey** ekci-lo wus-key-lul ha-nun-ta
John-Nom Mary-Dat against one's will smile-Adv-Acc do-Pst-Dec
'John causes Mary to smile against her will.'

b. John-i Mary-**lul** ekci-lo wus-key-lul ha-nun-ta
John-Nom Mary-Acc against one's will smile-Adv-Acc do-Pst-Dec
'John causes Mary to smile against her will.'

Judgments on these semantic differences appear to vary from speaker to speaker. Patterson (1974:38) comments on Yang's examples that "*ekcilo* is not as compatible with the *eykey*-phrase as it is with the *lul*-phrase." The fact that the semantic distinction between accusative and dative causees appears to vary from speaker to speaker, and not to produce any clear minimal pairs which do not depend on context, makes these facts more likely to find explanation in the area of lexical semantics than in syntactic constituent structure or subcategorization differences. Speakers are known to vary on fine details of word meaning without any necessary correlates, but much less likely to differ on the small set of syntactic constituent structures or subcategorization possibilities without other independent evidence of these dialect differences. Thus, my treatment of the semantic difference between accusative and dative causees will involve showing the points at which my analysis permits semantic differences to occur, without positing exactly what the crucial difference is, and exactly where it must be present.

Nominative causees have two distinct properties which could contribute to semantic differences between sentences they occur in, and sentences with accusative or dative causees. First, they occur as part of an embedded clause, rather than as a direct argument of the causative verb. While I have given the same semantic representation to biclausal embedding causatives and monoclausal verbal complex causatives in terms of relations and roles involved, a realistic, complete semantic account would include nuances beyond these direct roles. It is possible that syntactic constituency influences semantic nuances so that a nominative causee is perceived as less directly influenced by the causer than an accusative causee, due to its syntactic embedding.

The second distinguishing property of nominative causees is that they occur on the SUBJ list of the lower verb. It is possible that being a subject could contribute semantic nuances related to control over an action, independence, and volition, either from specifically being on the SUBJ list or from general properties of obliqueness.

Accusative and dative causees, in both lexical and periphrastic causatives, have two sources of possible meaning differences: the difference between grammatical and semantic case and the explicitness of animacy encoded in the case marker.

The fact that dative is a semantic case means that dative causees can contribute information to the semantic CONTENT of the causative verb through unification of the dative NP's CONTENT through its MOD value specification. The information provided by dative case would be the same for a large class of dative arguments, so that common elements of meaning shared by dative causees, dative Equi controllers, and dative recipients would be represented as part of the meaning of the dative case marker. Because accusative is a grammatical case, it will not add any semantic information to the verb.[37]

A second way in which the distinction between grammatical and semantic case could yield a semantic distinction between sentences with accusative and dative causees lies in the specification by the verb of which of its arguments bear grammatical case and which bear semantic case. Whether the correspondence between dative and accusative causees is related to other dative/accusative alternations by rule, in a dialect with a regular class of alternating verbs, or is simply listed, in a dialect with few such alternations, it is possible for there to be a semantic correlate

[37] Accusative case marking can also have a focus effect (Young-mee Yu Cho p.c.), so the analysis of focus, which is beyond the scope of this thesis, might provide additional ways for accusative case to affect CONTENT, including the possibility that grammatical cases also unify their CONTENT values with the verb which lexically subcategorizes for them.

of a verb's specification of grammatical vs. semantic case. Thus, it is possible for the coercive sense found with accusative causees to be related to the lack of responsibility, volition, and animacy of the object of verbs such as *ttayli-ta* 'hit', which have accusative objects. Similarly, the permissive sense found with dative causees can be related to the greater degree of animacy and independence of the object of verbs such as *mwut-ta* 'ask', which have dative objects.

In dialects where case stacking of dative *-eykey* and accusative *-lul* is permitted, we could find evidence to distinguish the two places where the distinction between grammatical and semantic case makes a difference. As discussed earlier, a case-stacked NP with both dative and accusative case would have a CASE feature of the sort *grammatical*, and not of the sort *semantic*. Because a plain accusative causee would also have the value [CASE *gram*], any difference in meaning between a sentence with a case-stacked causee bearing both dative and accusative case and a sentence with an accusative causee, could not result from the verb's distinction between grammatical and semantic case on its arguments. This difference would have to reflect the semantic contributions of the dative case marker *-eykey* to the verb's CONTENT, through the unification with *-eykey*'s CONTENT.

Similarly, because the semantic contributions of *-eykey* through its CONTENT would be the same in a plain dative causee and in a case-stacked causee with both dative and accusative marking, any meaning difference between sentences with a dative causee and with a case-stacked dative and accusative causee must be attributable to the verb's specification of [CASE *sem*] for the plain dative causee and of [CASE *gram*] for the case-stacked causee. Thus, the two possible ways which my analysis permits the distinction between grammatical and semantic case to affect the meaning of a sentence will be individually apparent in case-stacking dialects which permit *-eykey-lul* to combine.[38]

The final distinction recognized in my analysis which could contribute to a sense of a more independent and volitional causee with dative marking than with accusative marking lies in the form of the dative marker itself. Animate dative nouns take

[38]None of my Korean language consultants speak such a dialect.

the case marker *-eykey*, while inanimate dative nouns take the case marker *-ey*. This explicit recognition of animacy in the case ending means that a dative animate causee has grammatical specification of its animacy, which could contribute to the salience of this characteristic. The accusative marker *-lul* does not have variant forms based on animacy, so an accusative causee has no particular linguistic recognition of its animacy. This difference between the dative and accusative case markers could lead to a slight contrast between dative and accusative causees.

In conclusion, I have discussed several specific places in my analysis where semantic information may be contributed and where different semantic nuances may occur based on grammatical properties. These characteristics of my analysis should be sufficient to describe the semantic differences between causees of nominative, dative, and accusative cases. I leave the fine details of precisely what these differences are and in which kinds of sentences they occur to further research.

4.6.3.2 Transitivity

Due to the fact that causatives in many languages, such as French (Kayne 1975), have different case marking on the causee depending on the transitivity of the lower verb, transitivity is often assumed to play a universal role in causee case marking. In the literature on Korean causatives, we find three different positions on the effect of the lower verb's transitivity. The first position relates the case marking of the causee directly and absolutely to the transitivity of the lower verbs: if the lower verb is intransitive, the causee is accusative; if the lower verb is transitive, the causee is dative. The second position weakens the relation between causee case and transitivity by allowing either dative or accusative case for the causee when the lower verb is transitive, but continues to restrict causees to accusative case only when the lower verb is intransitive. The third position claims no relation between causee case and lower verb transitivity: either dative or accusative case may appear on the causee, regardless of whether the lower verb is transitive or intransitive.

I exemplify the predictions made by these three positions by giving three judgments for each of the following sentences, ordered corresponding to the order of their descriptions above. A transitive pair of sentences is given in (422), with all three positions agreeing that a dative causee is possible in (422a), but only the second and third positions predicting the accusative causee in (422b) to be similarly fine.

(422) a. ok/ok/ok Na-nun ku-**eykey** kwuk-ul kkuli-key hay-ss-ta
I-Top him-Dat soup boil-Adv do-Pst-Dec
'I made him boil the soup.'

b. */ok/ok Na-nun ku-**lul** kwuk-ul kkuli-key hay-ss-ta
I-Top him-Acc soup boil-Adv do-Pst-Dec
'I made him boil the soup.'

For the intransitive pair of sentences in (423), all three positions agree that the accusative causee in (423a) is acceptable, but only the third position accepts the dative causee in (423b).

(423) a. ok/ok/ok Na-nun ku-**lul** ka-key hay-ss-ta
I-Top him-Acc go-Adv do-Pst-Dec
'I made him go.'

b. */*/ok Na-nun ku-**eykey** ka-key hay-ss-ta
I-Top him-Dat go-Adv do-Pst-Dec
'I made him go.'

The examples in (422) and (423) involve periphrastic causatives, and most of the discussion in the literature concerns only periphrastic, and not lexical, causatives. I will note positions on lexical causatives where they are taken, but otherwise my discussion of other work will exclusively concern periphrastic causatives.

The first position, which strictly correlates lower verb transitivity and causee case, is apparently traditional in some sense. E. Baek (1984:118) adopts this position in giving a general descriptive grammar of Korean, K. Park (1986) argues for this generalization for lexical causatives, Patterson (1974) criticizes H. Lee (1970) for taking this position, and Y. Lee (1988) criticizes this as a traditional view. It is very much a minority view.

The second position, which restricts causatives with lower intransitive verbs to accusative causees only, reflects O'Grady's (1991) generalization for solely lexical causatives, and Cho, Han, and Sohn's (1990) generalization for both lexical and periphrastic causatives. It describes the judgments of most of my consultants for lexical causatives, and one of my consultants for periphrastic causatives.

The overwhelming majority of the literature on this issue supports the third position, in which lower verb transitivity and causee case are completely dissociated. Specifically, I. Yang (1972), Patterson (1974), Y. Kang (1984), H. Lee (1985), Gerdts (1986, 1990), Heycock (1987), E. Cho (1988), Y. Lee (1988), and O'Grady (1991) all hold this position. Many of these authors make the point that *-eykey* is appropriate only for a causee with control over the caused action, leading to ungrammatical sentences with dative causees when this condition is not met. Patterson (1974) gives the following examples to show how dative case is impossible in situations where the causee cannot be construed as controlling the caused action.

((i)) a. *Kwahakca-ka pi-**ey** o-key hay-ss-ta
scientist-Nom rain-Dat come-Adv do-Pst-Dec
'The scientist made it rain.'

b. Kwahakca-ka pi-**lul** o-key hay-ss-ta
scientist-Nom rain-Acc come-Adv do-Pst-Dec
'The scientist made it rain.'

For one of my consultants, the ability of the causee to control the caused action does not appear to be the only factor involved in permitting dative case. In (425), involving the less formal dative marker *-hanthey* instead of *-eykey*, a causative with an intransitive lower verb sounded close to ungrammatical with plain dative marking on the causee, but completely acceptable with the topic marker *-nun* following the dative marker. Because the verb *kitali-key* 'wait' presumably involves a subject who controls this caused action, (425) indicates that discourse factors, such as the emphasis placed on the causee, may affect the acceptability of dative case marking, in addition to semantic factors.[39]

[39]Note that while these discourse factors appear to be able to rule out dative on a causee with

(425) a. ??Komo-ka kocong.sachon-**hanthey** kakkum kitali-key hay-ss-ta
aunt-Nom cousin-Dat sometimes wait-Adv do-Pst-Dec
'My aunt sometimes made my cousin wait.'

b. Komo-ka kocong.sachon-**hanthey-nun** kakkum kitali-key
aunt-Nom cousin-Dat-Top sometimes wait-Adv
hay-ss-ta
do-Pst-Dec
'My aunt sometimes made my cousin wait.'

In light of the apparent consensus among most researchers that controllability of the caused action is the sole determining factor for causee case marking, the position that transitivity of the lower verb determined causee case marking in Korean causatives begins to seem incongruous. One key to this apparent mystery may be found in the remarks of H. Lee (1985), who quotes Comrie (1981:174) as saying subjects of transitive verbs generally have more control than subjects of intransitive verbs. This observation has the potential to reconcile the two different supposed bases for ungrammaticality in many instances.

For my own conclusions on this issue, I will not provide any specific account of when dative is possible and impossible on intransitives, since such an account would require more complete data on the subtle semantic and discourse issues involved. My account will provide the syntactic means to generate the widest range of sentences, with no transitivity-related rejection of dative or accusative marking, and allow narrowing of the class of acceptable sentences by independent semantic and discourse factors.

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control over the action, these same factors do not allow the use of dative on a causee with no control over the action. If we add the topic marker *-nun* to the dative causee *pi-ey* 'rain-Dat' in (423a), the sentence remains ungrammatical, as shown in (i) below.

(424) *Kwahakca-ka pi-**ey-nun** o-key hay-ss-ta
scientist-Nom rain-Dat-Top come-Adv do-Pst-Dec
'The scientist made it rain.'

The specifics of my analysis of Korean make semantic characteristics of the action described by the lower verb a possible local factor to the causee's case. In the lexical entry of the causative auxiliary *ha-ta*, given below in (426), the causee is identified as having semantic case and the state-of-affairs argument (SOA-ARG) is identified as belonging to the sort of controllable actions. The lexical entry for a semantically case-marked causee can thus make use of the same sorted inheritance hierarchy of semantic relations which was necessary for semantic case markers to identify the kinds of verbs they could felicitously be added to.

(426) Causative *ha-ta* with Dative Causee

$$\begin{bmatrix} \text{CAT} & \begin{bmatrix} \text{SUBJ} \left\langle \text{NP}_{\boxed{1}} \right\rangle \\ \text{COMPS} \left\langle \text{NP}_{\boxed{2}} \begin{bmatrix} \text{CASE } \mathit{sem} \end{bmatrix} \right\rangle \oplus \text{L} \oplus \left\langle \text{V} \begin{bmatrix} \text{SUBJ} \left\langle \text{NP}_{\boxed{2}} \right\rangle \\ \text{COMPS L} \\ \text{CONTENT } \boxed{3} \end{bmatrix} \right\rangle \end{bmatrix} \\ \text{CONTENT} & \begin{bmatrix} \text{RELN cause} \\ \text{CAUSER } \boxed{1} \\ \text{CAUSEE } \boxed{2} \\ \text{SOA-ARG } \boxed{3} \begin{bmatrix} \mathit{controllable} \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

(427) gives the corresponding lexical entry for a causative auxiliary with an accusative causee and a non-controllable lower verb.

(427) Causative *ha-ta* with Accusative Causee

$$\begin{bmatrix} \text{CAT} & \begin{bmatrix} \text{SUBJ} & \left\langle \text{NP}_{\boxed{1}} \right\rangle \\ \text{COMPS} & \left\langle \text{NP}_{\boxed{2}} \begin{bmatrix} \text{CASE } \mathit{gram} \end{bmatrix} \right\rangle \oplus \text{L} \oplus \left\langle \text{V} \begin{bmatrix} \text{SUBJ} & \left\langle \text{NP}_{\boxed{2}} \right\rangle \\ \text{COMPS} & \text{L} \\ \text{CONTENT} & \boxed{3} \end{bmatrix} \right\rangle \end{bmatrix} \\ \text{CONTENT} & \begin{bmatrix} \text{RELN} & \text{cause} \\ \text{CAUSER} & \boxed{1} \\ \text{CAUSEE} & \boxed{2} \\ \text{SOA-ARG} & \boxed{3} \begin{bmatrix} \mathit{non\text{-}controllable} \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

As the semantic factors governing the possibility of dative case on the causee become clear through further research, this analysis could be refined by giving a clear sorting of types of verbs, with the correct, motivated sort chosen in the causative lexical entry's SOA-ARG. A further possible improvement of this analysis would come with an understanding of linking theory, and the distribution of semantic or grammatical case on a verb's arguments according to other characteristics. This understanding could provide an explanation, rather than a lexical listing, of the cooccurrence of semantic, as opposed to grammatical case, with the controllable lower verbs. I leave these enhancements for further research, noting that my current account has the immediate ability to describe the core facts agreed upon by most researchers, and the flexibility to incorporate a more complex analysis in the future.

If the second position on transitivity holds for lexical causatives, meaning that intransitive lower verbs do not permit dative causees, but transitive lower verbs can co-occur with either dative or accusative causees, then lexical causatives will need a slightly different account from periphrastic causatives. One alternative could be making use of a *transitive* sort and providing a parallel analysis to the one based on the controllability sort above. Pollard and Sag (1987:203–207) describe a type for transitive verbs, as part of the cross-classification of lexical types.

Because lexical causativization is not productive, and the class of lexical causatives is small, it is in fact possible for the contrasts between transitive and intransitive lower stems to be simply listed, as the least explanatory alternative. Another consequence of the non-productivity and small number of lexical causatives is that it is also plausible that these causatives have conventionalized meanings beyond the combination of the verb stem with the causative suffix, so that generalizations about dative arguments for all verbs are as relevant as generalizations about lexical causatives. For example, the lexical causative *nol-li-ta* 'play-Caus-Dec' has a preferred meaning of "make fun of (someone)", rather than its literal meaning of "make (someone) play". My account already recognizes that most lexical causatives with complex semantic structure have homonyms with a flat, non-embedded semantic CONTENT, and the case marking restrictions of these homonyms could begin influencing the case marking of their conventionalized semantically complex counterparts.

One position which would not be tenable is holding that dative is impossible on causees of intransitive verbs because of a general restriction in the Korean lexicon disallowing dative objects when a verb has no accusative object. Counterexamples to this putative restriction include *kissu.ha-ta* 'kiss', *mal.ha-ta* 'talk to', and *taka.o-ta* 'approach' (Maling and Kim 1992).

Thus my analysis leaves several ways to account for a stricter relation to transitivity in the lexical causatives. Due to the uncertain nature of the generalization in this area, I do not put forth any final solutions, but rather show the ways in which my analysis can meet current hypotheses. For both periphrastic and lexical causatives, it appears that syntax should not fundamentally rule out either accusative or dative marking for causees regardless of the transitivity of the lower verb. Semantic and discourse issues will serve to narrow the possible case markings, and some speakers may have an additional, syntactic transitivity condition for lexical causatives.

4.6.3.3 Account of Causee Case

Now that we have reviewed the facts about semantic differences between accusative and dative causees and about lower verb transitivity and controllability issues, I will present my account of causee case. The fundamentals of the account follow from the same basic case principles discussed throughout the section on case.

Accusative case on the causee results when the causative auxiliary specifies grammatical case for the causee. (427) in the last section gives a lexical entry representing this specification, along with the semantic sorting of the SOA-ARG which is not a crucial part of my analysis. When the causee is satisfied from the COMPS list, the Object Case Principle will unify the AG-PR-SIS value of the causee with the [AG-PR-SIS +] value of the causative auxiliary. Only an accusative-marked NP will have an [AG-PR-SIS +] value, so a nominative-marked NP will not be possible in this structure, due to its [AG-PR-SIS −] value.

When the causative auxiliary specifies semantic case for the causee, dative case will be the only semantic case with a CONTENT value compatible with the causative auxiliary's CONTENT. (426) gives a lexical entry which gives the semantic case specification on the causee, in addition to specifying the SOA-ARG as belonging to the *controllable* sort. An accusative causee will not be able to unify with this subcategorization specification due to the conflict of its [CASE *gram*] specification with the [CASE *sem*] specification in this entry.

The fact that the causative auxiliary can specify the causee argument as having either grammatical or semantic case is no doubt related to other verbs having dative/accusative alternations. A linking theory which captures the reasons behind those alternations could bring further refinement to this analysis of causee case in the future.

Another possible position on the difference between accusative and dative case on causees is that the accusative causee has grammatical case marking due to an absolute identification of the entire subject NP with the causee NP. This position would mean that the grammatical case marking borne by the lower subject would be inherited by the causee, with no information at all contributed by the higher verb. Thus the contrast between the dative and accusative causees would be that an accusative causee had no information contributed to the causee NP by the causative verb, while a dative causee inherited only the index of the lower subject, without its grammatical case specification, and received a semantic case specification from the causative auxiliary, making the accusative/dative contrast similar to the usual contrast between Raising and Equi Control sentences. I do not adopt this position because it makes the distinction between accusative and dative causees into something specific to verbs with complex arguments, and not something resulting from the overall relation of dative and accusative in Korean. I include this description of the position as a possible direction if future data do not yield the kind of explanatory background to this dative/accusative alternation which I now envision. Should this alternate position be necessary, it may fit within the ideas put forth by Alsina & Joshi (1991) and Alsina (1993, 1996), where contrasts between accusative and dative causees are related to whether the causative construction in question is a two-place relation involving only a causer and a caused event or a three-place relation involving a patient in addition to the causer and caused event. A further factor in their analysis is the argument structure property of whether the patient of a three-place causation relation fuses with the agent or the patient of the lower verb. I leave exploration of these ideas with regard to Korean transitivity to future research.

4.6.3.4 Case Stacking on Causees

A final area of causee case marking which bears on our overall analysis of the causative concerns case stacking on causees. The possible and impossible combinations of causee case markers can provide us with important information on causative structures. Because none of my consultants have accepted case stacking, I am limited to outlining the predictions made by various hypotheses, and leaving the judgments and weighing of results to readers with dialects permitting case stacking.

K. Hong (1991b) describes Case Stacking as possible any place there is an alternation between two cases. This predicts a specific set of facts regarding case stacking in the causative. My analysis treats dative and accusative case marking on the causee as related in the same way dative and accusative alternations are possible with other verbs. Thus we would expect to see both dative and accusative case stack together on a causee, in a case-stacking dialect. (428) provides an example which should be good for speakers who follow the Gerdts and Youn pattern and accept *-eykey* stacked with *-lul*.

(428) Emeni-kkeyse ai-**eykey-lul** pap-ul mek-key ha-si-ess-ta
mother-HNom child-Dat-Acc rice-Acc eat-Adv do-Hon-Pst-Dec
'Mother made the child eat the rice.'[predicted good]

Since speakers following the K. Hong (1991b) pattern have a morphological gap which rules out the possibility of *-eykey* plus *-lul*, I provide the example in (429) with an inanimate causee with the *-ey* dative instead of *-eykey*. This example is predicted to be good for speakers of both case stacking dialects, as long as the causee *maul* 'town' meets the controllability criterion described in the transitivity section.

(429) Imkum-nim-kkeyse ku maul-ey-lul pic-ul kaph-key ha-si-ess-ta
king-Hon-HNom that town-Dat-Acc debt-Acc pay-Adv do-Hon-Pst-Dec
'The king had that town pay its debt.'[predicted good]

The examples in (428) and (429) should contrast sharply with examples given in (430) and (431) below, where nominative case is combined with dative case.

(430) *Emeni-kkeyse ai-**eykey-ka** pap-ul mek-key ha-si-ess-ta
mother-HNom child-Dat-Nom rice-Acc eat-Adv do-Hon-Pst-Dec
'Mother made the child eat the rice.'[predicted '*']

(431) *Imkum-nim-kkeyse ku maul-**ey-ka** pic-ul kaph-key ha-si-ess-ta
king-Hon-HNom that town-Dat-Nom debt-Acc pay-Adv do-Hon-Pst-Dec
'The king had that town pay its debt.'[predicted '*']

While dative and accusative causees are closely related and occur in the same structure, nominative causees are subjects of an embedded lower clause, but dative causees are objects in a monoclausal causative. Thus the relation between dative and accusative is very different from the relation between dative and nominative, even though causative sentences can superficially differ only in having any of the three case markings on the causee. Thus nominative and dative are not related in an alternation, and the occurrence of dative along with nominative on a causee should be possible only in sentences where the lower clause has a dative/nominative alternation independently in simple clauses. As long as that is not the case, i.e. the sentences in (432) and (433) are ungrammatical, the dative-nominative case-stacked sentences in (430) and (431) should be ungrammatical, in contrast to the grammatical dative-accusative case-stacked sentences in (428) and (429).

(432) *Ai-eykey-ka pap-ul mek-ess-ta
child-Dat-Nom rice-Acc eat-Pst-Dec
'The child ate the rice.'

(433) *Ku maul-ey-ka pic-ul kaph-ess-ta
that town-Dat-Nom debt pay-Pst-Dec
'That town paid its debt.'

The generalizations about case stacking laid out in previous work, combined with the analysis of causative given here, lead to predictions of specific contrasts in case stacking possibilities on causees. This data awaits confirmation by speakers of case-stacking dialects.

4.6.4 Conclusion: Case and Causatives

Throughout this section we have seen how the general principles of case hold for periphrastic and lexical causatives. The particular characteristics of causatives, most apparent in causatives of statives, have given us added insight into the properties of Korean case.

4.7 Conclusion: Case Marking in Korean Causatives

Korean case marking is fundamentally divided into the sorts of *grammatical* and *semantic* case. Differences between these sorts are apparent in morphological characteristics, as well as in the fact that grammatical case shows alternations based on the same lexical items occurring in different constituent structures. Verbs specify their arguments as taking either semantic or grammatical case, and further specification of grammatical arguments as nominative or accusative occurs in the Subject and Object Case Principles, at the point of subcategorization satisfaction. The semantic effects of semantic case marking result from the unification of the CONTENT of the semantically case-marked NP with the CONTENT of the verb. Causatives fit naturally within the case analysis which describes the other verbs of Korean.

Chapter 5

Analysis of Apparent Counterevidence

5.1 Introduction

In this chapter I will examine various kinds of evidence which have been used in support of various analyses of Korean causatives, with particular attention to any apparent counterevidence to any aspect of my account. I will first discuss evidence which supports my analysis in particular, apart from the structural evidence which provides the basis of this account, discussed in Chapter 2. Next I will discuss evidence which poses no problem for my account, but does not distinguish my analysis from other analyses. The third section will discuss the more serious problems confronting a monoclausal analysis of the periphrastic causative, along with my analysis of the data involved, while the fourth section will discuss the problems posed for a biclausal analysis of periphrastic causatives with nominative causees and my analysis of these facts. Because so many of the issues raised deal with subjecthood, I first discuss this overall aspect before beginning the specific areas of contention.

5.1.1 Theoretical Importance of Subject Tests

Among the various types of evidence used to distinguish various analyses of Korean causatives, subject tests play a large role. In this chapter, I will examine arguments involving the subject tests (in some instances, supposed subject tests) of *-kkeyse* marking, subject honorification, plural copying, control clauses, subject-oriented anaphora, and the possibility of resumptive pronouns. With the large concentration of evidence in this area, it is important to understand the theoretical place of subject tests historically, and within any particular analysis.

Traditionally in generative linguistic theory, the existence of a subject was tightly linked to the existence of a clause. Deep Structures always involved one subject per clause, though transformations could alter structures so that a Deep Structure subject would be unexpressed in Surface Structure. The connection between the existence of a clause and the existence of a subject became even tighter in Government-Binding Theory, where the Projection Principle ensured that any argument present in d-structure would also be present in s-structure. For example, Equi sentences involve a silent PRO subject of the lower clause.

In older accounts such as Patterson (1974), showing that certain sentences had objects which displayed subject-oriented properties provided an argument for complex deep structures of these sentences. In this way, the fact that certain anaphors showed a strong preference for subject antecedents provided the basis for arguing that apparent exceptions to this subject-orientation in fact reflected underlying structure, before the application of transformations.

In a theory such as HPSG with no transformations to relate different levels of structure, surface objects will not be conceived of as deep, pre-transformation subjects. Accordingly, properties interpreted in other theories as showing deep structure subjects will receive an interpretation in HPSG which captures the aspect of subjecthood in terms of any of various properties generally related to subjecthood, such as being a member of the SUBJ list, having a more agentive type semantic role, or being coindexed with a subject. Furthermore, without an underlying deep structure in which very regular clauses contain arguments without overlap or ambiguities, the relation between subjects and clauses is seen differently in HPSG. The clause boundary in HPSG divides verb-argument units from each other, without necessarily having a subject in each unit. The central characteristic of a clause is the verb-argument relation, not the completeness of all arguments in the entire clause, most notably the subject, being present. Of course, in simple sentences, the HPSG idea of a clause is the same as the traditional or Government-Binding idea of a clause, with a subject and all other subcategorized arguments. However, in HPSG, Equi sentences involve an embedded clause with no expressed subject phrase or construct, that is, no PRO subject, and no deleted deep structure subject. The subject's semantic role remains present in the lower verb's CONTENT, as well as remaining as an unsatisfied argument on the lower verb's SUBJ list, with its index identified with an object of the higher verb. Thus, subjecthood properties from other analyses of Equi sentences are still explained within HPSG, but the conception of a clause does not require a subject to be expressed in constituent structure.

The connection of the concepts of subject and clause leads to a great importance being given to subjecthood tests in assessing the complexity of a type of sentence such as the causative. In HPSG, the different conception of subjects and clauses means that certain kinds of data which were critical for other analyses no longer make crucial distinctions between monoclausal and biclausal structures. The theoretical background affects the weight of various kinds of evidence.

Within HPSG, we can distinguish subjecthood tests which require expressed subjects realized in the constituent structure from subjecthood tests which treat expressed and unexpressed subjects as the same. The presence of an expressed subject, while not necessary for a separate clause in HPSG, would be sufficient to establish the existence of a clause. Tests for expressed subjects may also determine the true subject of a clause when it is unclear which of several NP's bears this grammatical relation. Tests grouping expressed and unexpressed subjects can indicate the existence of argument-taking predicates, as in the complex structure of the lexical causatives. Ascertaining the linguistic presence of an argument-taking verb stem separate from the argument-taking verbal suffix is possible from the existence of the unexpressed lower subject, coindexed with the causee.

I now move to examine the subjecthood tests, along with various other kinds of evidence which have been brought to bear on causative analyses.

5.2 Case and Binding Evidence for Clausality

I present two kinds of evidence particularly in favor of my analysis, evidence from honorific nominative marking in favor of the causative with a nominative causee being biclausal, and evidence from binding requirements of the anaphor *cakicasin* in favor of the causatives with dative and accusative causees being monoclausal.

5.2.1 Honorific Nominative *-kkeyse* Case Marking

Recall from Section 4.5.2.2.5 that the honorific nominative case marker *-kkeyse* only occurs on subjects, and not on objects. In my analysis, this results from an AGENTIVE-PREDICATE-SISTER (AG-PR-SIS) feature specification of "NONE" on *-kkeyse* in the lexicon, and thus on all *-kkeyse*-marked nominative nouns and NP's. Because the Object Case Principle unifies the AG-PR-SIS feature of items on the COMPS list with the AG-PR-SIS value of the verb and no verb has the AG-PR-SIS value "NONE", a *-kkeyse*-marked NP can never appear on a COMPS list.[1] This property of *-kkeyse* provides evidence that the periphrastic causative with a nominative causee involves two grammatical subjects, and not a grammatical subject and a "1-chômeur" as in Gerdts (1990), or a nominative subject and a nominative object, as in a possible analysis Gerdts (1990) argues against.

The examples in Section 4.5.2.2.5 show us that in monoclausal sentences with two nominative NP's only one NP will be able to bear *-kkeyse* marking. If the causatives with nominative causees were monoclausal, it would be most likely that the causer was the subject and the nominative causee was an object, parallel to the accusative and dative causees which have more usual object case marking. This would predict

[1] Sells (1995:312) states *-kkeyse*'s restriction to appearing on subjects in Dalrymple's (1993) LFG notation as $((\text{SUBJ} \uparrow)\ \text{SUBJ}) = \uparrow$. This is a direct requirement on *-kkeyse* that the noun bearing it as a case marker function as a subject. My account relies on blocking *-kkeyse* from appearing as an object, rather than positively requiring it to be a subject.

that only the causer, and not the nominative causee, would be able to bear -*kkeyse* marking.

(434) shows that both causers and causees can be marked with -*kkeyse* (example from Y. Kim 1990a:163), and thus both causer and causee appear to be grammatical subjects. An analysis of the causee as a nominative object would require an explanation of the difference between the causee and all the other nominative objects which do not permit -*kkeyse* marking.

(434) Emeni-**kkeyse** [apeci-**kkeyse** cinci-lul capswusi-key] ha-si-ess-ta
mother-HNom father-HNom Hon.rice-Acc Hon.eat-Adv do-Hon-Pst-Dec
'Mother caused father to eat the rice.'

(435) a. Emeni-**ka** [apeci-**ka** cinci-lul capswusi-key] ha-si-ess-ta
mother-Nom father-Nom Hon.rice-Acc Hon.eat-Adv do-Hon-Pst-Dec
'Mother caused father to eat the rice.'

b. Emeni-**ka** [apeci-**kkeyse** cinci-lul capswusi-key] ha-si-ess-ta
mother-Nom father-HNom Hon.rice-Acc Hon.eat-Adv do-Hon-Pst-Dec
'Mother caused father to eat the rice.'

c. Emeni-**kkeyse** [apeci-**ka** cinci-lul capswusi-key] ha-si-ess-ta
mother-HNom father-Nom Hon.rice-Acc Hon.eat-Adv do-Hon-Pst-Dec
'Mother caused father to eat the rice.'

A biclausal analysis would provide the same simple explanation for -*kkeyse* marking in the causative sentences as in sentences with uncontroversial embedded clauses, as in the examples below.

(436) Emeni-**kkeyse** [apeci-**kkeyse** cinci-lul capswusi-ess-ta-ko]
mother-HNom father-HNom Hon.rice-Acc Hon.eat-Pst-Dec-Quot
malssumhasi-ess-ta
Hon.say-Pst-Dec
'Mother said that father ate the rice.'

(437) a. Emeni-**ka** [apeci-**ka** cinci-lul capswusi-ess-ta-ko]
mother-Nom father-Nom Hon.rice-Acc Hon.eat-Pst-Dec-Quot
malssumhasi-ess-ta
Hon.say-Pst-Dec
'Mother said that father ate the rice.'

b. Emeni-**ka** [apeci-**kkeyse** cinci-lul capswusi-ess-ta-ko]
mother-Nom father-HNom Hon.rice-Acc Hon.eat-Pst-Dec-Quot
malssumhasi-ess-ta
Hon.say-Pst-Dec
'Mother said that father ate the rice.'

c. Emeni-**kkeyse** [apeci-**ka** cinci-lul capswusi-ess-ta-ko]
mother-HNom father-Nom Hon.rice-Acc Hon.eat-Pst-Dec-Quot
malssumhasi-ess-ta
Hon.say-Pst-Dec
'Mother said that father ate the rice.'

In causative sentences with nominative causees, as in ordinary biclausal sentences, the subject of a lower, embedded clause is satisfied from the lower verb's SUBJ list in the same way as in simple sentences. Together with argument satisfaction through Schema 1, the Subject Case Principle specifies the NP's grammatical case as nominative case in particular. The Subject Case Principle makes no reference to the AG-PR-SIS feature, so -*kkeyse*'s "NONE" value for that feature does not affect the status of the sentence. If the causee were a nominative object, -*kkeyse* would not be possible because the Object Case Principle's specification of [AG-PR-SIS +] for a causative object would conflict with -*kkeyse*'s "NONE" value.

The important consequence of this causative data is that the possibility of -*kkeyse* marking on the causee supports my analysis of it as a nominative lower subject, rather than an analysis which claims that the nominative marker on the causee does not genuinely indicate a subject, but rather some kind of nominative object.

5.2.2 Clause-Bounded *Caki.casin* Anaphora

Anaphoric binding is a phenomenon which is restricted to occurring within a clause in many languages, as reflected in most grammatical frameworks. Although Korean is similar to Japanese and Chinese in permitting long-distance binding for several anaphors, some speakers of Korean do have a clause-boundedness restriction for compound anaphors such as *caki.casin*, *ku.casin*, and *tangsin.casin* (Cole, Hermon and Sung 1990).

The part of HPSG binding theory (Pollard and Sag 1994:254) which concerns anaphoric binding is given in Principle A below.

(438) **Principle A**: A locally o-commanded anaphor must be locally o-bound.

Local o-command (Pollard and Sag 1994:253) is defined below,

(439) **Local o-command**: Let Y and Z be *synsem* objects with distinct LOCAL values, Y referential. Then Y *locally o-commands* Z just in case Y is less oblique than Z.

The other technical definition needed to understand Principle A, namely that of O-Binding, follows (Pollard and Sag 1994:254).

(440) **(Local) O-Binding**: Y (*locally*) *o-binds* Z just in case Y and Z are coindexed and Y (locally) o-commands Z. If Z is not (locally) o-bound, then it is said to be *(locally) o-free*.

The kind of situation prohibited by this account of HPSG anaphoric binding is a SUBJ or COMPS list[2] with an anaphor where something (referential) locally o-commands an anaphor but does not bind it. If either of the NP's on the COMPS

[2]Pollard and Sag's (1994) account is stated in terms of SUBCAT lists; however, I will discuss the binding theory in terms of SUBJ and COMPS lists with no real difference in the underlying concepts. It would also be possible to follow Manning and Sag (1995) and define binding theory on the ARG-S (for "argument structure") list, which is a theoretical descendant of the SUBCAT list. ARG-S is canonically a list formed by appending the COMPS list onto the SUBJ list, but Manning and Sag explore how non-canonical ARG-S lists can explain various phenomena involving pro-drop, passive, causatives, and ergative languages.

list in (441) were anaphors, they would not be bound by the NP on the SUBJ list, because they are not coindexed with it, nor would the more oblique COMPS list item be bound by the less oblique COMPS list item, because they have different indices. Thus, with no local binding occurring, the occurrence of an anaphor on the COMPS list in (441) would be prohibited by the HPSG binding theory.

(441)

$$\begin{bmatrix} \text{SUBJ} \left\langle \text{NP}_{\boxed{1}} \right\rangle \\ \text{COMPS} \left\langle \text{NP}_{\boxed{2}},\ \ \text{NP}_{\boxed{3}} \right\rangle \end{bmatrix}$$

However, this sort of situation does occur in languages where anaphors take long-distance antecedents while they also have local o-commanders. The following example from O'Grady (1987) is an example of this under the reading where *caki* is coreferent with *Bob*.

(442)	Nay-ka	Bob$_i$-eykey	John$_j$-i	caki-lul$_{i,j}$	co.a.ha-n-ta-ko	mal.hay-ss-ta
	I-Nom	Bob-Dat	John-Nom	self-Acc	like-Pres-Dec-Quot	say-Pst-Dec

'I said to Bob$_i$ that John$_j$ liked self$_{i,j}$.'

Thus, it is necessary to include more than local o-command relations. The general o-command relation (Pollard and Sag 1994:253) allows o-command to be defined recursively, extending from head to subcategorized head and subcategorized arguments.

(443) **O-Command**: Let Y and Z be *synsem* objects with distinct LOCAL values, Y referential. Then Y *o-commands* Z just in case Y locally o-commands X dominating Z.

Once this is done, the crucial prohibited case is one in which there are local and non-local o-commanders, but a long-distance anaphor is not bound by any of them. As mentioned at the beginning of this section, languages like Korean will have some long-distance anaphors, while also having some clause-bounded, local anaphors.

As a sidenote, the HPSG binding theory is particularly strong in explaining the properties of Korean local anaphors such as *caki.casin* because it explains the otherwise unexpected characteristic that subjects of embedded clauses can be local anaphors with an antecedent in the immediately dominating clause, as shown in (444).

(444) Minswu$_i$-ka Swuni$_j$-eykey [**caki.casin$_{i,j}$-i** nuc-key o-ass-ta-ko]
Minswu-Nom Swuni-Dat self-Nom late-Adv come-Pst-Dec-Quot
mal.hay-ss-ta
say-Pst-Dec
'Minswu$_i$ told Swuni$_j$ that he$_i$/she$_j$ came late.'

Since subject anaphors are not locally o-commanded, because they are the least oblique argument of a verb; by Principle A, they need not be locally o-bound even if the particular anaphor elsewhere requires local binding. These facts regarding subject anaphors, however, do not affect the argument of this section, because it concerns a contrast in anaphoric binding possibilities of compound anaphors which are not in subject position.

The important argument of this section rests on the clause-boundedness of certain Korean anaphors such as *caki.casin*. The clause-bounded property allows us to test the clausality of causatives, extending the work of C. Sohn (1991) in this direction.

A sentence with a VP complement can illustrate the clause-boundedness of the anaphor, and provide a close comparison with a causative sentence. In (445), speakers with the clause-bounding restriction only permit the honorific *tangsin.casin* or the non-honorific *caki.casin*, the objects of the lower verb in the two parallel examples, to take the subject of the lower verb as an antecedent. The lower subject is unexpressed, but it is controlled by the matrix dative NP, *sensayngnim-eykey* 'teacher' in the honorific sentence, and *Minswu-eykey* 'Minswu' in the non-honorific sentence. The matrix subject *noin-kkeyse* 'old man' cannot be the antecedent of *tangsincasin* in the honorific example, and the matrix subject *Swuni-ka* 'Swuni' cannot be the antecedent of *caki.casin* in the non-honorific example.

(445) a. Noin$_i$-kkeyse sensayngnim$_j$-eykey **tangsin.casin$_{*i,j}$-ul**
Old.man-HNom teacher-Dat self-Acc
sokay.ha-lako kwen.ha-si-ess-ta
introduce-Cmp ask-Hon-Pst-Dec
'The old man$_i$ asked the teacher$_j$ to introduce himself$_{*i,j}$.'

b. Swuni$_i$-ka Minswu$_j$-eykey **caki.casin$_{*i,j}$-eykey** manh-un ton-ul
Swuni-Nom Minswu-Dat self-Dat much-Adj money-Acc
cipwul.ha-tolok seltuk.hay-ss-ta
pay-Cmp persuade-Pst-Dec
'Swuni$_i$ persuaded Minswu$_j$ to pay himself$_j$/*herself$_i$ a lot of money.'

These binding possibilities are predicted by my analysis, as represented in the HPSG sign below for (445a).

(446)

$$\begin{bmatrix} \text{PHON} & \langle \text{ kwen.ha } \rangle \\ \text{CONTENT} & \begin{bmatrix} \text{RELN} & \text{ask} \\ \text{ASKER} & \boxed{1} \\ \text{ASKEE} & \boxed{2} \end{bmatrix} \\ \text{DTRS} & \begin{bmatrix} \text{SUBJ-DTR} & \left\langle \text{NP}_{\boxed{1}} \right\rangle \\ \text{COMP-DTRS} & \left\langle \text{NP}_{\boxed{2}}, \begin{bmatrix} \text{PHON} & \langle \text{ sokay.ha } \rangle \\ \text{CAT} & \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \textit{verb} \end{bmatrix} \\ \text{LEX} & - \\ \text{SUBJ} & \left\langle \text{NP}_{\boxed{2}} \right\rangle \end{bmatrix} \\ \text{CONTENT} & \begin{bmatrix} \text{RELN} & \text{introduce} \\ \text{INTRODUCER} & \boxed{2} \\ \text{INTRODUCEE} & \boxed{3} \end{bmatrix} \\ \text{COMP-DTRS} & \left\langle \text{NP}_{\boxed{3}} \right\rangle \end{bmatrix} \right\rangle \end{bmatrix} \end{bmatrix}$$

In this sign the NP's[3] referred to by indices $\boxed{1}$ and $\boxed{2}$ are local to each other, due to both being arguments of the higher verb, and the NP's referred to by indices $\boxed{2}$ and $\boxed{3}$ are local to each other, due to both being arguments of the lower verb, but the NP's

[3]It is important to note that the SUBJ-DTRS and COMP-DTRS lists involve entire signs, including the PHON and SUBJ-DTRS and COMP-DTRS attributes of their members along with the SYNSEM attributes. The SUBJ and COMPS lists involve SYNSEM values only, not entire signs, reflecting the linguistic fact that verbs subcategorize for their arguments based on local syntactic and semantic information only, and not on their phonological characteristics, or properties of items embedded within the arguments. I have not represented the difference between SYNSEM values and entire signs in my abbreviatory notation in this HPSG sign and the following one, but I intend to maintain this distinction in my account.

referred to by the indices $\boxed{1}$ and $\boxed{3}$ are not ever both arguments of the same verb, and thus they are not local to each other. Thus if the clause-bounded anaphor *caki.casin* or *tangsin.casin* bears index $\boxed{3}$, it cannot be locally bound by the NP bearing index $\boxed{1}$.

However, in causative sentences such as in (448), speakers with the clause-boundedness limitation on *caki.casin* and *tangsin.casin* do permit the anaphor, again the object of the lower verb, to take either the causee or the causer as its antecedent. This follows directly from my analysis of these sentences as involving a single clause. (447) and (448) each give a causative sentence with a dative causee first, followed by the corresponding sentence with an accusative causee.

(447) a. Noin$_i$-kkeyse sensayngnim$_j$-kkey **tangsin.casin$_{i,j}$-ul** sokay.ha-key
Old.man-HNom teacher-Dat self-Acc introduce-Adv
ha-si-ess-ta
do-Hon-Pst-Dec
'The old man$_i$ made the teacher$_j$ introduce himself$_{i,j}$.'

b. Noin$_i$-kkeyse sensayngnim$_j$-ul **tangsin.casin$_{i,j}$-ul** sokay.ha-key
Old.man-Nom teacher-Acc self-Acc introduce-Adv
ha-si-ess-ta
do-Hon-Pst-Dec
'The old man$_i$ made the teacher$_j$ introduce himself$_{i,j}$.'

(448) a. Swuni$_i$-ka Minswu$_j$-eykey **caki.casin$_{i,j}$-eykey** manh-un ton-ul
Swuni-Nom Minswu-Dat self-Dat much-Adj money-Acc
chilu-key hay-ss-ta
pay-Adv do-Hon-Pst-Dec
'Swuni$_i$ made Minswu$_j$ pay herself$_i$/himself$_j$ a lot of money.'

b. Swuni$_i$-ka Minswu$_j$-lul **caki.casin$_{i,j}$-eykey** manh-un ton-ul
Swuni-Nom Minswu-Acc self-Dat much-Adj money-Acc
cipwul.ha-key hay-ss-ta
pay-Adv do-Hon-Pst-Dec
'Swuni$_i$ made Minswu$_j$ pay herself$_i$/himself$_j$ a lot of money.'

The HPSG sign for a causative sentence, permitting the lower object, with index $\boxed{3}$, to be locally o-bound by the matrix subject, with index $\boxed{1}$, would be as follows.

(449)

$$\left[\begin{array}{l} \text{PHON} \ \langle \text{ sokay.ha-key ha-si-ess-ta } \rangle \\ \text{HEAD} \left[\textit{verb} \right] \\ \text{CONTENT} \left[\begin{array}{l} \text{RELN cause} \\ \text{CAUSER } \boxed{1} \\ \text{CAUSEE } \boxed{2} \\ \text{SOA-ARG} \left[\begin{array}{l} \text{RELN introduce} \\ \text{INTRODUCER } \boxed{2} \\ \text{INTRODUCEE } \boxed{3} \end{array}\right] \end{array}\right] \\ \text{DTRS} \left[\begin{array}{l} \text{SUBJ-DTR} \left\langle \text{NP}_{\boxed{1}} \right\rangle \\ \text{COMP-DTRS} \left\langle \text{NP}_{\boxed{2}},\ \text{NP}_{\boxed{3}},\ \text{V} \right\rangle \end{array}\right] \end{array}\right]$$

In causative sentences with a nominative causee such as in (451), which are biclausal in my analysis, we see the same behavior as in the VP complement sentence. *tangsin.casin* and *caki.casin*, as the objects of the lower verbs, are able to take the lower verb's subject, which is the causee *sensaygnim-i* 'teacher-Nom' or *Minswu-ka* 'Minswu-Nom' as its antecedent, but not the causer *noin-kkeyse* 'old man-Nom' or *Swuni-ka* 'Swuni-Nom'.

(450) Noin$_i$-kkeyse sensayngnim$_j$-i **tangsin.casin$_{*i,j}$-ul** sokay.ha-key
Old.man-Nom teacher-Nom self-Acc introduce-Adv
ha-si-ess-ta
do-Hon-Pst-Dec
'The old man$_i$ made the teacher$_j$ introduce himself$_{*i,j}$.'

(451) Swuni$_i$-ka Minswu$_j$-ka **caki.casin$_{*i,j}$-eykey** manh-un ton-ul
Swuni-Nom Minswu-Nom self-Dat much-Adj money-Acc
chilu-key hay-ss-ta
pay-Adv do-Hon-Pst-Dec
'Swuni$_i$ made Minswu$_j$ pay *herself$_*i$/himself$_j$ a lot of money.'

Honorifics can contribute to or decrease the acceptability of these sentences. There is a dialect which finds the above contrast only in the non-honorific sentences (448) and (451), where no honorifics, such as the honorific nominative *-kkeyse* and the honorific suffix *-si* on *ha-si-ta*, are present.

These facts argue that there is a distinction in clausality between the causatives with nominative causees, which act like normal biclausal sentences, and the causatives with dative and accusative causees, which are monoclausal. This data would be hard to account for in any analysis which did not make those same assumptions.

These facts would follow from an HPSG analysis of causatives with nominative causees as biclausal, as in the sign given below.

(452)

$$\begin{bmatrix}
\text{CONTENT} & \begin{bmatrix} \text{RELN} & \text{cause} \\ \text{CAUSER} & \boxed{1} \\ \text{CAUSEE} & \boxed{2} \end{bmatrix} \\
\text{DTRS} & \begin{bmatrix} \text{SUBJ-DTR} & \left\langle \text{NP}_{\boxed{1}} \right\rangle \\ \text{COMP-DTRS} & \left\langle \begin{bmatrix} \text{CAT} & \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \textit{verb} \end{bmatrix} \\ \text{LEX} & - \end{bmatrix} \\ \text{CONTENT} & \begin{bmatrix} \text{RELN} & \text{pay} \\ \text{PAYER} & \boxed{2} \\ \text{PAYEE} & \boxed{3} \end{bmatrix} \\ \text{DTRS} & \begin{bmatrix} \text{SUBJ-DTR} & \left\langle \text{NP}_{\boxed{2}} \right\rangle \\ \text{COMP-DTRS} & \left\langle \text{NP}_{\boxed{3}} \right\rangle \end{bmatrix} \end{bmatrix} \right\rangle \end{bmatrix}
\end{bmatrix}$$

The monoclausality of lexical causatives is not controversial, so they would be expected, under my analysis or most others, to permit either causer or causee to antecede *caki.casin*. The examples below demonstrate that *tangsin.casin* and *caki.casin* can take either the causer or the causee as an antecedent. There is no possibility of a nominative causee with a lexical causative.

(453) a. ?Imkum-nim$_i$-kkeyse wangca$_j$-nim-lul **tangsin.casin$_{i,j}$-eykey** phyenci-lul
king-Hon-HNom prince-Hon-Acc self-Dat letter-Acc

ssu-i-si-ess-ta
write-Caus-Hon-Pst-Dec
'The king$_i$ made the prince$_j$ write a letter to himself$_{i,j}$.'

b. ?Imkum-nim$_i$-kkeyse wangca$_j$-nim-eykey **tangsin.casin$_{i,j}$-eykey**
king-Hon-HNom prince-Hon-Dat self-Dat
phyenci-lul ssu-i-si-ess-ta
letter-Acc write-Caus-Hon-Pst-Dec
'The king$_i$ made the prince$_j$ write a letter to himself$_{i,j}$.'

(454) a. Minswu$_i$-ka Chelswu$_j$-eykey **caki.casin$_{i,j}$-uy** kulim-ul
Minswu-Nom Chelswu-Dat self-Gen picture-Acc
po-i-ess-ta
see-Caus-Pst-Dec
'Minswu$_i$ showed Chelswu$_j$ a picture of himself$_{i,j}$.'

b. Minswu$_i$-ka Chelswu$_j$-lul **caki.casin$_{i,j}$-uy** kulim-ul
Minswu-Nom Chelswu-Acc self-Gen picture-Acc
po-i-ess-ta
see-Caus-Pst-Dec
'Minswu$_i$ showed Chelswu$_j$ a picture of himself$_{i,j}$.'

The lexical causatives' HPSG sign would have all the same relevant properties as that of the periphrastic causatives. All four NP's from (453), with indices $\boxed{1}$, $\boxed{2}$, $\boxed{3}$, and $\boxed{4}$, are local to each other in this sign.

(455)

$$\begin{bmatrix} \text{PHON} & \langle \text{ ssu-i-si-ess-ta } \rangle \\ \text{HEAD} & \begin{bmatrix} \textit{verb} \end{bmatrix} \\ \text{CONTENT} & \begin{bmatrix} \text{RELN cause} \\ \text{CAUSER } \boxed{1} \\ \text{CAUSEE } \boxed{3} \\ \text{SOA-ARG} \begin{bmatrix} \text{RELN write} \\ \text{WRITER } \boxed{3} \\ \text{WRITTEN } \boxed{2} \\ \text{WRITEE } \boxed{4} \end{bmatrix} \end{bmatrix} \\ \text{DTRS} & \begin{bmatrix} \text{SUBJ-DTR} \left\langle \text{NP}_{\boxed{1}} \right\rangle \\ \text{COMP-DTRS} \left\langle \text{NP}_{\boxed{2}}, \ \text{NP}_{\boxed{3}}, \ \text{NP}_{\boxed{4}}, \ \text{V} \right\rangle \end{bmatrix} \end{bmatrix}$$

In conclusion, the clause-bounded binding requirement of the anaphor *caki.casin* demonstrates that verbal complex causatives and lexical causatives with dative and accusative causees are monoclausal for purposes of binding, while causatives with nominative causees are biclausal. This adds to the evidence from the subjecthood restriction on *-kkeyse* marking that causatives with nominative causees involve an embedded lower clause.

5.3 Subjecthood Tests and HPSG Clausality

In this section, I discuss evidence from subjecthood tests which has been raised in support of other differing analyses, but which poses no particular difficulties for my analysis, due to the HPSG concept of clausality. The areas I will examine are subject honorification, plural copying, and anaphoric binding. These areas rely on the subcategorization for subjects on SUBJ lists, so the availability of SUBJ lists of the lower verb or lower stem and the causative auxiliary or causative suffix is parallel to the existence of two separate SUBJ lists for the higher and the embedded clause in biclausal structures. Accordingly, we do not expect a contrast between the monoclausal causative structures and ordinary biclausal structures in these properties.

5.3.1 Subject Honorification

The Korean subject honorification verbal suffix represents information about the subject's honorific status as a piece of morphology on the verb. This coming together of subject and verb information, both basic parts of a clause, has made subject honorification attractive as a test of clausality. The possibility of the causer being honored by subject honorification in the periphrastic causative but not in the lexical causative was used to distinguish the two causatives as biclausal and monoclausal, respectively (Y. Kim 1990a:163, Shibatani 1973a). I will review the data concerning subject honorification and causatives, then demonstrate how my account handles this data and how subject honorification need not be linked to clausality.

Subject honorification involves either the subject honorification suffix *-(u)si* attaching lexically to a verb, as in (456), or a suppletive honorific form, as in (457).[4] In either case, the verb with either regular morphological or suppletive honorification indicates that the subject of the verb is honored.

(456)	Cho-sensayngnim-kkeyse	hankwukmal-ul	kaluchi-**si**-n-ta
	Cho-teacher-HNom	Korean.language-Acc	teach-Hon-Pres-Dec
	'Teacher Cho teaches Korean (language).'		

(457)	Cho-sensayngnim-kkeyse	**cwumwusi**-ess-ta
	Cho-teacher-HNom	Hon.sleep-Pst-Dec
	'Teacher Cho slept.'	

Across various types of sentences, subject honorification is specific in determining which NP is honored to the extent that K. Hong (1991b:8) includes subject honorification as one of the few reliable tests for grammatical subject and Youn (1990:23) uses it as a test for final 1-hood in Relational Grammar.

To incorporate the facts of subject honorification into my account, I will follow the HPSG analysis of subject honorification given in E. Han (1991). Han uses the

[4] The non-honorific verb for 'sleep' is *ca-ta*, and **cwumu-ta* is not a verb, so the final *si* in the verb stem *cwumwusi-ta* does not represent an instance of the regularly formed honorific suffixation, as pointed out by E. Han (1991).

SUBCAT valence feature where I use SUBJ and COMPS lists, but the different valence lists do not affect the analysis in any way here. Also, in describing the arguments of the "social-superior" relation in the background attribute of the context, Han uses "ARG1" for what I call "superior" and "ARG2" for what I call "reference-pt". My terms are based on the ideas in her work.

As an example, the HPSG sign in (458) for the honorific verb *wus-usi-ess-ta* 'smiled' shows the honorific suffix *-(u)si* as part of the PHON value of the verb, and represents the honorification as part of the CONTEXT. Within the CONTEXT, we find BACKGROUND information on the "social-superior" relation. Specifically, the subject of the sentence, identified by its referential INDEX $\boxed{1}$, is the superior of either the speaker or the addressee, whose indices are found within the CONTEXT value C-INDICES.

(458)

$$
\left[\begin{array}{ll}
\text{PHON} & \langle \text{ wus-usi-ess-ta } \rangle \\
\text{SYNSEM} & \left[\begin{array}{ll}
\text{CAT} & \left[\begin{array}{ll} \text{HEAD} & \left[\, \textit{verb} \,\right] \\ \text{SUBJ} & \left\langle \text{ NP}_{\boxed{1}} \right\rangle \end{array}\right] \\
\text{CONTENT} & \left[\begin{array}{ll} \text{RELN} & \text{smile} \\ \text{SMILER} & \boxed{1} \end{array}\right] \\
\text{CONTEXT} & \left[\begin{array}{ll} \text{C-INDICES} & \left[\begin{array}{ll} \text{SPEAKER} & \boxed{2} \\ \text{ADDRESSEE} & \boxed{3} \end{array}\right] \\ \text{BACKGROUND} & \left\{ \left[\begin{array}{ll} \text{RELN} & \text{soc-sup} \\ \text{SUPERIOR} & \boxed{1} \\ \text{REFERENCE-PT} & \boxed{2} \vee \boxed{3} \\ \text{POLARITY} & 1 \end{array}\right] \right\} \end{array}\right]
\end{array}\right]
\end{array}\right]
$$

The subject need not be realized, either overtly or at all, for the verb to contribute this information to the sentence. The honorific verb *kaluchi-si-nun-ta* 'teaches (Hon)' in (459) can honor a null pronominal subject, whose referent would be clear from discourse context. In (460), the verb in a VP complement identifies its subject as honored, even though the subject is not expressed within the clause and only controlled by the matrix clause dative NP *Cho-sensayngnim-kkey* 'Teacher Cho-Dat'.

(459) Hankwukmal-ul kaluchi-**si**-nun-ta
Korean.language-Acc teach-Hon-Pres-Dec
'[honored person] teaches Korean (language).

(460) Nay-ka Cho-sensayngnim-kkey hankwukmal-ul kaluchi-**si-tolok**
I-Nom Cho-teacher-HDat Korean-Acc teach-Hon-Adv
seltuk.hay-ss-ta
persuade-Pst-Dec
'I persuaded Teacher Cho to teach Korean.'

The following HPSG sign represents the clause headed by the verb *seltuk.hay-ss-ta* 'persuaded' with a subject-honorific verb heading its VP complement, just as in (460). The CONTEXT information contributed by the lower verb is inherited by the higher verb into its own CONTEXT.

(461)

$$
\left[\begin{array}{ll}
\text{PHON} & \langle \text{ seltuk.hay-ss-ta } \rangle \\
\text{HEAD} & \left[\, verb \,\right] \\
\text{CONTENT} & \left[\begin{array}{ll} \text{RELN} & \text{persuade} \\ \text{PERSUADER} & \boxed{1} \\ \text{PERSUADEE} & \boxed{2} \\ \text{SOA-ARG} & \boxed{3} \end{array}\right] \\
\text{CONTEXT} & \boxed{4} \\
\text{DTRS} & \left[\begin{array}{ll}
\text{SUBJ-DTR} & \left\langle \text{NP}_{\boxed{1}} \right\rangle \\
\text{COMP-DTRS} & \left\langle \text{NP}_{\boxed{2}},\ \left[\begin{array}{ll}
\text{HEAD} & \left[\, verb \,\right] \\
\text{SUBJ} & \left\langle \text{NP}_{\boxed{2}} \right\rangle \\
\text{COMPS} & \langle\ \rangle \\
\text{CONTENT} & \boxed{3} \\
\text{CTXT} \ \boxed{4} & \left[\begin{array}{ll}
\text{C-INDICES} & \left[\begin{array}{ll} \text{SPEAKER} & \boxed{5} \\ \text{ADDRESSEE} & \boxed{6} \end{array}\right] \\
\text{BACKGRD} & \left\{ \left[\begin{array}{ll} \text{RELN} & \text{soc-sup} \\ \text{SUPERIOR} & \boxed{2} \\ \text{REF-PT} & \boxed{5} \ \vee \ \boxed{6} \end{array}\right] \right\}
\end{array}\right]
\end{array}\right] \right\rangle
\end{array}\right]
\end{array}\right]
$$

The facts of subject honorification in causatives are that the periphrastic causative allows the causative verb's subject and the lower verb's subject each to be honored independently (Patterson 1974:29, Gerdts 1986, Y. Kim 1990a). Examples are given below of each of these possibilities, with honored elements and the honorific suffixes italicized. Notice that the possibility of either the causer or the causee being honored results not from any ambiguity in a single honorific form, but rather from the availability of both the lower verb and the higher verb to each bear their own honorific suffix.

(462) a.

Kyoswu-nim-i	na-eykey	chayk-ul	ilk-key	ha-*si*-ess-ta
professor-Hon-Nom	me-Dat	book-Acc	read-Adv	do-Hon-Pst-Dec

'The professor made me read the book'.

b.

Nay-ka	*kyoswu-nim*-ul	ttena-*si*-key	hay-ss-ta
I-Nom	professor-Hon-Acc	leave-Hon-Adv	do-Pst-Dec

'I had the professor leave'.

c.

Kyocangsensayng-nim-i	*sensayng-nim-tul*-ul	anc-*usi*-key
principal-Hon-Nom	teacher-Hon-Plur-Acc	sit-Hon-Adv

ha-*si*-ess-ta
do-Hon-Pst-Dec
'The principal made the teachers sit.'

The following HPSG sign describes the subject-honoring version of the causative auxiliary, namely, *ha-si-ta*. Just as for any other verb, its subject is the superior to the reference point of either speaker or addressee in the background relation "social-superior".

(463)

$$
\left[\begin{array}{ll}
\text{PHON} & \langle \text{ha-si-ta} \rangle \\
\text{SYNSEM} & \left[\begin{array}{ll}
\text{CAT} & \left[\begin{array}{l}
\text{HEAD} \left[\textit{verb}\right] \\
\text{SUBJ} \left\langle \text{NP}_{\boxed{1}} \right\rangle \\
\text{COMPS} \left\langle \text{NP}_{\boxed{2}}, \left[\begin{array}{l}
\text{HEAD} \left[\textit{verb}\right] \\
\text{SUBJ} \left\langle \text{NP}_{\boxed{2}} \right\rangle \\
\text{COMPS } \mathrm{L} \\
\text{CONTENT } \boxed{3}
\end{array}\right] \right\rangle \oplus \mathrm{L}
\end{array}\right] \\
\text{CONTENT} & \left[\begin{array}{l}
\text{RELN cause} \\
\text{CAUSER } \boxed{1} \\
\text{CAUSEE } \boxed{2} \\
\text{SOA-ARG } \boxed{3}
\end{array}\right] \\
\text{CONTEXT} & \left[\begin{array}{ll}
\text{C-INDICES} & \left[\begin{array}{l}
\text{SPEAKER } \boxed{4} \\
\text{ADDRESSEE } \boxed{5}
\end{array}\right] \\
\text{BACKGROUND} & \left\{ \left[\begin{array}{l}
\text{RELN soc-sup} \\
\text{SUPERIOR } \boxed{1} \\
\text{REFERENCE-PT } \boxed{4} \vee \boxed{5} \\
\text{POLARITY } 1
\end{array}\right] \right\}
\end{array}\right]
\end{array}\right]
\end{array}\right]
$$

The fact that the causee in the periphrastic causative can be honored through subject honorification results from the fact that the index of the causee is identified with the index of the subject of the lower verb in the periphrastic causative. Thus the causee itself is not actually honored, but merely coindexed with an honored subject. This is parallel to the example of the controller of the unexpressed subject of a VP complement being coindexed with it, and thus having its referent honored.

When the lower verb bears the subject-honorific suffix, it simply adds its background information about the social superiority relations to the higher, dominating sign. The causee bears the same index as the subject of the lower verb, and because of this, the referent of the causee is honored by subject honorification on the lower verb.

The HPSG sign for the causative verbal complex in (464) illustrates this combination of information from both verbs.

(464)

$$
\left[\begin{array}{ll}
\text{PHON} & \langle \text{ anc-usi-key ha-si-ess-ta } \rangle \\
\text{CAT} & \left[\begin{array}{l}
\text{HEAD} \left[\, \textit{verb} \,\right] \\
\text{SUBJ} \left\langle \text{ NP}_{\boxed{1}} \right\rangle \\
\text{COMPS} \left\langle \text{ NP}_{\boxed{2}} \right\rangle
\end{array}\right] \\
\text{CONTENT} & \left[\begin{array}{ll}
\text{RELN} & \text{cause} \\
\text{CAUSER} & \boxed{1} \\
\text{CAUSEE} & \boxed{2} \\
\text{SOA-ARG} & \left[\begin{array}{ll} \text{RELN} & \text{sit} \\ \text{SITTER} & \boxed{2} \end{array}\right]
\end{array}\right] \\
\text{CONTEXT} & \left[\begin{array}{ll}
\text{C-INDICES} & \left[\begin{array}{ll} \text{SPEAKER} & \boxed{3} \\ \text{ADDRESSEE} & \boxed{4} \end{array}\right] \\
\text{BACKGRD} & \left\{ \left[\begin{array}{ll} \text{RELN} & \text{soc-sup} \\ \text{SUPERIOR} & \boxed{1} \\ \text{REFER-PT} & \boxed{3} \vee \boxed{4} \end{array}\right], \left[\begin{array}{ll} \text{RELN} & \text{soc-sup} \\ \text{SUPERIOR} & \boxed{2} \\ \text{REFER-PT} & \boxed{3} \vee \boxed{4} \end{array}\right] \right\}
\end{array}\right]
\end{array}\right]
$$

The lexical causative, in contrast, only permits the subject of the causative verb to be honored. The following examples show a grammatical sentence with the causer honored, and an ungrammatical sentence with both the causee and causer honored. Patterson (1974:29) notes that these examples necessarily involve both a causer and a causee which are appropriate for honorification, since the causer and causee bear the honorific forms of the nominative and dative case markers, respectively.

(465) a. *Kim-kyoswu-nim*-kkeyse Pak-kyoswu-nim-kkey chayk-ul
Kim-professor-Hon-HNom Park-professor-Hon-HDat book-Acc
ilk-hi-*si*-ess-ta
read-Caus-Hon-Pst-Dec
'Professor Kim made Professor Park read the book.'

b. **Kim-kyoswu-nim*-kkeyse *Pak-kyoswu-nim*-kkey chayk-ul
Kim-professor-Hon-HNom Park-professor-Hon-HDat book-Acc
ilk-*si*-hi-*si*-ess-ta
read-Hon-Caus-Hon-Pst-Dec
'Professor Kim made Professor Park read the book.'

Note that the causee may not be honored by the subject honorification suffix -*si* on a lexical causative verb regardless of whether the causer is honored. The ungrammatical example in (466a) attempts to honor the causee with a non-honored causer. Without the subject honorification marker, the sentence is completely grammatical, as in (466b).

(466) a. *Nay-ka *Pak-kyoswu-nim*-kkey chayk-ul ilk-hi-*si*-ess-ta
I-Nom Park-professor-Hon-HDat book-Acc read-Caus-Hon-Pst-Dec
'I made Professor Park read the book.'

b. Nay-ka *Pak-kyoswu-nim*-kkey chayk-ul ilk-hi-ess-ta
I-Nom Park-professor-Hon-HDat book-Acc read-Caus-Pst-Dec
'I made Professor Park read the book.'

Since both the subject honorific morpheme and the lexical causative morpheme are suffixes, the morphological principle known as the Mirror Principle (Baker 1985) or the Satellite Principle (Gerdts 1981, 1988) could be expected to apply. This would mean that different readings involving the application of honorification before or after causativization would correspond to different orders of the causative and honorific suffixes. However, as pointed out by S. Song (1988:186), Korean morphology never permits the ordering of the suffixes where the honorific suffix precedes the causative suffix, as in the ungrammatical example in (467).

(467) *Nay-ka *Pak-kyoswu-nim*-kkey chayk-ul ilk-*usi*-hi-ess-ta
I-Nom Park-professor-Hon-HDat book-Acc read-Hon-Caus-Pst-Dec
'I made Professor Park read the book.'

This kind of morphological constraint is not peculiar to the interaction of the lexical causative and subject honorification. In fact, no other suffixes at all can occur closer to the verb root than the lexical causative suffix, and many suffixes are ordered with respect to each other. E. Han (1991) and Y. Cho & Sells (1990) discuss systems of morphology in which suffixes are categorized by the "bar-level" of the constituent they create, and which they subcategorize for, in the lexicon. Other approaches to morphology rely on templates separating out the morphemes by slots they can occur in (Lapointe 1990, 1991). Y. Cho & Sells (1995) abandon the strict bar-level approach, because of incorrect predictions about the ordering of delimiters such as *-man* 'only', and use both structural patterns giving slots for nominal and verbal morphology as well as TYPE specifications restricting the combinations of particular morphemes.

Since morphological constraints rule out the ordering of suffixes which would be logically necessary for the causee to be honored as a subject in a lexical causative, the causer is the only possible target of honorification.

Y. Kim (1990a:163) takes the differences between the periphrastic and lexical causatives in subject honorification to indicate a difference in clausality. As we have seen, these differences follow directly from the lexical properties of the subject honorific suffix *si*, in restricting the kind of morphological stem it can attach to, and in specifying social superiority information about the subject of the verb. Thus, the subject honorification facts are perfectly compatible with a monoclausal account of periphrastic causatives, in addition to lexical causatives.

5.3.2 Plural Copying

Plural copying involves the appearance of the plural marker *-tul* on items which need not themselves have plural meaning when the subject or other controlling item is plural. Yookyung Kim (1992b), in an HPSG-based account, argues against the traditional unitary account of spurious plurals in favor of recognizing two distinct phenomena. She distinguishes subject-oriented plural copying from semantic distributivity-based plural copying which may occur from non-subject arguments. I will follow her account here, adapting her definition of subject as the least oblique item on the

SUBCAT list to the definition of subject as belonging to the SUBJ list.

C. Youn (1990:34) characterizes plural copying as a test for final 1-hood, though he (1990:148) also states that possessors can control plural copying, in sentences like the following. I am not convinced, however, that the subjects of these sentences, namely *elkwul-i* 'face(s)-Nom' in (468a) and *khi-ka* 'height(s)-Nom' in (468b), are not in fact plural.

(468) a. Ai-tul-uy **elkwul**-i manhi-*tul* yewi-ess-ta
child-Plur-Gen face-Nom much-Plur become.thing-Pst-Dec
'The children's faces became very thin.'

b. Ku sanay-tul-uy **khi**-ka chenceng-ey-*tul* tah-ass-ta
the man-Plur-Gen height-Nom ceiling-to-Plur touch-Pst-Dec
'The height of the men was such that their heads touched the ceiling.'

By restricting the data to sentences with non-distributive semantics, we can use plural copying as a test for grammatical subject. Examples from Y. Kim (1992b) follow. (469) shows that only a plural subject and not a plural object may trigger optional plural copying. With (470), Kim shows that a raised subject may trigger plural copying, demonstrating that this is a syntactic and not a semantic phenomenon, contrary to accounts such as K. Hong (1991b:24–28).

(469) a. Ai-tul-i kwaca-lul mek-ko(-*tul*) iss-ta
child-Plur-Nom cookie-Acc eat-Cmp(-Plur) be-Dec
'Children are eating cookies.'

b. John-i kwaca-lul mek-ko(*-*tul*) iss-ta
John-Nom cookie-Acc eat-Cmp(-Plur) be-Dec
'John is eating cookies.'

(470) Ai-tul-i ca-na-(-*tul*) po-ci-yo(-*tul*)
child-Plur-Nom sleep-Cmp(-Plur) seem-Cmp-End(-Plur)
'It seems that the children are sleeping, doesn't it?'

In Kim's account, a predicate bearing a "copied" plural marker lexically specifies that its subject's index is plural, as seen in the HPSG sign for *mek-ko-tul* 'eat-Cmp-Plur' as in (469).

(471)

$$\begin{bmatrix} \text{PHON} & \langle \text{ mek-ko-tul } \rangle \\ \text{SYNSEM} & \begin{bmatrix} \text{CAT} & \begin{bmatrix} \text{HEAD} & \left[\textit{verb}\right] \\ \text{SUBJ} & \left\langle \text{NP}_{\boxed{1}} \right\rangle \\ \text{COMPS} & \left\langle \text{NP}_{\boxed{2}} \right\rangle \end{bmatrix} \\ \text{CONTENT} & \begin{bmatrix} \text{RELN} & \text{eat} \\ \text{EATER} & \boxed{1}\left[\text{INDEX}|\text{NUM plural}\right] \\ \text{EATEE} & \boxed{2} \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

In lexically specifying information about the subject's index, the phenomenon of plural copy resembles subject honorification. In the periphrastic causative, we can expect to see both the lower and higher verbs lexically specify information about their own subjects. In the lexical causative, the morphological restrictions do not allow the creation of a lexical causative which would specify that its causee is plural. Just as in subject honorification, these differences between periphrastic and lexical causatives are directly attributable to the difference between the syntactic combination of complete lexical items and the morphological combination of stems and affixes. We need not look to clausality and constituent structure for the source of these distinctions.

In the periphrastic causative, we can see how plural marking on a predicate corresponds to the plurality of the subject. The plural marking on the higher causative verb can occur with a plural causer subject, as in (472a), but not with a singular causer, as in (472b). The number of the causee has no effect on the grammaticality of the plural marker on the higher predicate; in (472a), a singular causee co-occurs with a plural predicate, and in (472b), a plural causee co-occurs with a singular predicate.

In all these examples, the causative verb is embedded under the Raising verb *po-ta* 'seem' in order to allow plural marking on the causative verb for speakers who do not accept sentence-final plural markers (Y. Kim 1992b). Some speakers may find the acceptability of the sentences improves if the causative verb is the matrix verb, rather than embedded. These different preferences have no bearing on the arguments and conclusions of this section.

(472) a. Yetongsayng-tul-i isascim.wunpanepca-hanthey honca.se ku khu.n
sister-Plur-Nom mover-Dat on.his.own the big
phiano-lul nay cip-ey olmki-key ha-yss-na-**tul** po-ci-yo
piano-Acc my house-Dir carry-Adv do-Pst-Cmp-Plur seem-Cmp-End
'It seems that my sisters had the mover carry the big piano on his own into my house.'

b. *Yetongsayng-i isascim.wunpanepca-tul-hanthey hamkkey ku khu.n
sister-Nom mover-Plur-Dat together the big
phiano-lul nay cip-ey olmki-key ha-yss-na-**tul** po-ci-yo
piano-Acc my house-Dir carry-Adv do-Pst-Cmp-Plur seem-Cmp-End
'It seems that my sister had the movers carry the big piano together into my house.'

The HPSG sign for the verbal complex with a plural marker on the causative auxiliary is as given below.

(473)

$$\begin{bmatrix} \text{PHON} \ \langle \text{ olmki-key ha-yss-na-tul } \rangle \\ \text{SYNSEM} \begin{bmatrix} \text{CAT} \begin{bmatrix} \text{HEAD} \begin{bmatrix} \textit{verb} \end{bmatrix} \\ \text{SUBJ} \left\langle \text{NP}_{\boxed{1}} \right\rangle \\ \text{COMPS} \left\langle \text{NP}_{\boxed{2}},\ \text{NP}_{\boxed{3}} \right\rangle \end{bmatrix} \\ \text{CONTENT} \begin{bmatrix} \text{RELN cause} \\ \text{CAUSER } \boxed{1} \begin{bmatrix} \text{INDEX}|\text{NUM plural} \end{bmatrix} \\ \text{CAUSEE } \boxed{2} \\ \text{SOA-ARG} \begin{bmatrix} \text{RELN carry} \\ \text{CARRIER } \boxed{2} \\ \text{CARRIED } \boxed{3} \end{bmatrix} \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

When the plural marking is on the lower verb, the number of the causee becomes relevant. A plural lower verb can occur when the causee is plural, as in (474). A singular causer in this sentence causes no inconsistency, as the plural refers to the plural lower subject.

(474) Yetongsayng-i isascim.wunpanepca-tul-hanthey hamkkey ku khu.n
sister-Nom mover-Plur-Dat together the big
phiano-lul nay cip-ey olmki-key-**tul** ha-yss-na po-ci-yo
piano-Acc my house-Dir carry-Adv-Plur do-Pst-Cmp seem-Cmp-End
'It seems that my sister had the movers carry the big piano together into my house.'

As for subject honorification, it is important to point out that the plural marking indicates that the lower subject has a plural index, and that the causee is not the same as the actual lower subject, but instead has the same index as the unrealized lower subject. This can be seen in the HPSG sign for the causative verbal complex with a plural marker on the lower verb given below.

(475)

$$\begin{bmatrix} \text{PHON} & \langle \text{olmki-key-tul ha-yss-na} \rangle \\ \text{SYNSEM} & \begin{bmatrix} \text{CAT} & \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \textit{verb} \end{bmatrix} \\ \text{SUBJ} & \left\langle \text{NP}_{\boxed{1}} \right\rangle \\ \text{COMPS} & \left\langle \text{NP}_{\boxed{2}},\ \text{NP}_{\boxed{3}} \right\rangle \end{bmatrix} \\ \text{CONTENT} & \begin{bmatrix} \text{RELN} & \text{cause} \\ \text{CAUSER} & \boxed{1} \\ \text{CAUSEE} & \boxed{2} \\ \text{SOA-ARG} & \begin{bmatrix} \text{RELN} & \text{carry} \\ \text{CARRIER} & \boxed{2} \begin{bmatrix} \text{INDEX}|\text{NUM plural} \end{bmatrix} \\ \text{CARRIED} & \boxed{3} \end{bmatrix} \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

The remaining type of example, with plural marking on the lower verb and a singular causee, as in (476) would be predicted to be bad on this account, as given so far. The HPSG sign given in (475) for a lower verb with plural marking specifies that the lower verb's subject is plural.

(476) Yetongsayng-tul-i isascim.wunpanepca-hanthey honca.se ku khu.n
sister-Plur-Nom mover-Dat on.his.own the big
phiano-lul nay cip-ey olmki-key-**tul** ha-yss-na po-ci-yo
piano-Acc my house-Dir carry-Adv-Plur do-Pst-Cmp seem-Cmp-End
'It seems that my sisters had the mover carry the big piano on his own into my house.'

However, the sentence is good if it is be interpreted as having a dependent plural on the lower verb, where the lower verb is taken to be an argument of the higher verb, which has a plural subject.[5] A dependent plural is a spurious plural marker which is licensed on an element of a clause when the clause has either another plural nominal, under certain restrictions outlined by Y. Kim (1992b), or an adverbial suggesting repetitive ("plural") action.

If the higher subject is singular, this removes the possibility of a dependent plural in this sentence, since there are no other plural NP's and no adverb indicating repeated action. The sentence with a singular causer and a singular causee cannot have a plural marker on the lower verb, as seen in (477). This fits the HPSG sign given in (475).

(477) *Yetongsayng-i isascim.wunpanepca-hanthey honca.se ku khu.n
sister-Nom mover-Dat on.his.own the big
phiano-lul nay cip-ey olmki-key-**tul** ha-yss-na po-ci-yo
piano-Acc my house-Dir carry-Adv-Plur do-Pst-Cmp seem-Cmp-End
'It seems that my sister had the mover carry the big piano on his own into my house.'

Lexical causatives show a different pattern of possible plural copying, but, as in the case of subject honorification, this is directly attributable to the morphology. The lexical causative suffix attaches only to an unaffixed verbal stem, while the copied plural suffix occurs after all other verbal suffixes. These morphological facts mean that the copied plural marker can only attach to a lexical causative verb after the causative suffix, and not before. Thus the copied plural affix can only refer to the causer subject, and not the causee which was the subject of the unaffixed verbal stem.

[5] I owe this observation to Yookyung Kim (p.c.).

Examples illustrating this are given below. (478a) shows that spurious plural marking can occur on the lexical causative verb *tul-li-ess-na* 'cause to carry' when the causer, *yetongsayng-tul-i* 'sisters', is plural. (478b) shows that this plural marking on the lexical causative verb is not possible in a sentence with a singular causer and a plural causee.

(478) a. Yetongsayng-tul-i cimkkun-hanthey ku khu.n sangca-lul
sister-Plur-Nom porter-Dat that big box-Acc
tul-li-ess-na-**tul** po-ci-yo
carry-Caus-Pst-Cmp seem-Cmp-End
'It seems that my sisters made the porter carry that big box.

b. *Yetongsayng-i cimkkun-tul-hanthey hamkkey ku khu.n sangca-lul
sister-Nom porter-Plur-Dat together that big box-Acc
tul-li-ess-na-**tul** po-ci-yo
carry-Caus-Pst-Cmp seem-Cmp-End
'It seems that my sister made the porters together carry that big box.

In (479), we see that spurious plural marking is not possible after the verb stem and before the causative suffix *-hi*, regardless of whether the causer or the causee is plural. *tul*-**tul**-*li-ess-na* 'carry-Plur-Caus-Pst-Cmp' is simply not a possible word in Korean, just as there are no other verbs with a spurious plural marker occurring before verbal suffixes such as tense.

(479) a. *Yetongsayng-tul-i cimkkun-hanthey ku khu.n sangca-lul
sister-Plur-Nom porter-Dat that big box-Acc
tul-**tul**-li-ess-na po-ci-yo
carry-Caus-Pst-Cmp seem-Cmp-End
'It seems that my sisters made the porter carry that big box.

b. *Yetongsayng-i cimkkun-tul-hanthey ku khu.n sangca-lul
sister-Nom porter-Plur-Dat together that big

tul-**tul**-li-ess-na po-ci-yo
box-Acc carry-Caus-Pst-Cmp seem-Cmp-End
'It seems that my sister made the porters together carry that big box.

The lexical causative has fewer possibilities for the spurious plural marker to attach, and thus it lacks the possibility of identifying the lower subject as plural through plural copy on the verb. This does not tell us anything about the clause structure of the periphrastic or lexical causative, nor does it tell us anything semantic. These facts directly reflect morphological organization, and agree with our analyses for the periphrastic and lexical causatives.

The second kind of plural copy defined by Y. Kim, regarding distributive readings, is useful in showing the nested semantics of the causative. It is possible to isolate the two semantic relations, with a distributive reading for either the higher, as in (481a) or the lower, as in (480). (481b) is bad because it has a plural marker on the causee, which is part of the higher semantic relation. The fact that the causee has the same index as the subject of the lower clause, which involves a repeated action, is not relevant because the appearance of a spurious plural marker on an NP does not indicate that that NP itself is plural and says nothing about that NP's own index.

(480) a. Yetongsayng-i isascim.wunpanepca-hanthey honca.se manh.un
sister-Nom mover-Dat on.his.own many
sangca-tul-ul cip-ey-**tul** olmki-key ha-yss-na po-ci-yo
box-Plur-Acc house-Dir-Plur carry-Adv do-Pst-Cmp seem-Cmp-End
'It seems that my sister made the mover carry many boxes on his own.'

b. *Yetongsayng-i isascim.wunpanepca-hanthey-**tul** toklyek-ulo manhun
sister-Nom mover-Dat on.his.own many
sangca-tul-ul cip-ey-**tul** olmki-key ha-yss-na po-ci-yo
box-Plur-Acc house-Dir-Plur carry-Adv do-Pst-Cmp seem-Cmp-End
'It seems that my sister made the mover carry many boxes on his own.'

(481) Yetongsayng-i mayil ai-hanthey-**tul** phiano-lul chi-key hay-ss-ta
sister-Nom every.day child-Dat-Plur piano-Acc play-Adv do-Pst-Dec
'Every day my sister made the child play the piano.'

In conclusion, both kinds of plural copying phenomena identified by Y. Kim (1992b) interact with the periphrastic and lexical causatives in ways we would expect under our analysis.

5.3.3 Control Clauses

In most languages, a subject can be identified as the element which is the target of control by the subject of a higher verb, or the object, depending on the verb. This kind of test can be applied to a causative sentence as a whole, where the subject of the entire causative sentence will be controlled by a matrix NP. It cannot, however, be applied to determine the subject of the lower verb in a causative, since a control verb cannot occur between the causative auxiliary and the lower verb without changing the construction entirely. The lower verb is the complement of the causative verb, and cannot head a clause subcategorized for by the control verb. Thus, using control as a test on causatives gives us only limited information.

Control has been used to argue for the final grammatical relations after Clause Union in causatives. Gerdts (1990:217) argues that control structures show that the causer is the final 1, and the causee is a 1-chômeur. She gives examples such as the following where the controlled clause can be interpreted only as having the causer as the controlled NP, corresponding to the boldfaced NP in (483a), and not the causee, corresponding to the boldfaced NP in (483b).

(482) Nay-ka John-eykey [Mary-ka ttena-key ha-tolok] pwutak.hay-ss-ta
I-Nom John-Dat Mary-Nom leave-Adv do-so.that ask-Pst-Dec
'I asked John to make Mary leave'
*'I asked John for Mary to make him leave.'

(483) a. **John**-i Mary-ka ttena-key hay-ss-ta
John-Nom Mary-Nom leave-Adv do-Pst-Dec
'John made Mary leave.'

b. Mary-ka **John-i** ttena-key hay-ss-ta
Mary-Nom John-Nom leave-Adv do-Pst-Dec
'Mary made John leave.'

My analysis predicts these contrasts by having the causer be the subject, as would any analysis of the causative which I am familiar with.

5.3.4 Subject-oriented Anaphora

The claim has been made that Korean has anaphors which require subjects as their antecedent. The fact that these anaphors could take either causer or causee as antecedents in periphrastic causatives argued for the biclausal structure of those sentences in older accounts. Whether lexical causatives had the same anaphoric possibilities was debated in order to determine if they had a complex deep structure like the periphrastic causatives. However, as the amount of research on Korean anaphora increased, it became apparent that the condition that anaphors take only subject antecedents could not be maintained in the face of the evidence, even if the condition includes unexpressed subjects.

In this section, I review the basic facts which established the early importance of subject-oriented anaphora and the facts of how these anaphors behave in periphrastic and lexical causatives. I then show the evidence which vitiated the earlier work, and greatly diminishes the importance of anaphora for future research on Korean causatives.

5.3.4.1 Caki as subject test

Most early work on the subject orientation of Korean anaphora only dealt with the anaphor *caki*. In simple sentences, *caki* could take the subject as an antecedent, but did not appear to be able to take other NP's as antecedents, even if those NP's were less oblique than *caki*, linearly preceded it, and c-commanded it. Examples from Patterson (1974:27) and Shibatani (1973a:292) are given below.

(484)	Kim$_i$-ssi-ka	Pak$_j$-ssi-eykey	**caki**$_{i,*j}$-ey.tayhaye		iyaki	hay-ss-ta
	Kim-Mr.-Nom	Park-Mr.-Dat	self-about		talk	do-Pst-Dec

'Mr. Kim$_i$ talked to Mr. Park$_j$ about himself$_{i,*j}$.'

(485) Ai$_i$-nun sonye$_j$-lul **caki**$_{i,*j}$-uy pang-eyse cha-ss-ta
child-Top girl-Acc self-Gen room-Loc kick-Pst-Dec
'The child$_i$ kicked the girl$_j$ in his$_i$/*her$_j$ own room.'

In complex sentences, in addition to taking antecedents which are actual subjects of clauses, *caki* can take other arguments as antecedents if they are coreferent with unexpressed subjects, such as in sentences with a VP complement with its subject controlled by a higher object. The following example is from Shibatani (1973a:292).

(486) Kim$_i$-ssi-nun ku sonye$_j$-eykey **caki**$_{i,j}$**-uy** pang-ey iss-ula-ko yocheng
Kim-Mr.-Top that girl-Dat self-Gen room-Dat be-Dec-Cmp request
hay-ss-ta
do-Pst-Dec
'Mr. Kim$_i$ requested the girl$_j$ to be in his$_i$/her$_j$ own room.'

Thus, subject-oriented anaphora is a subject test for both expressed and unexpressed subjects, and thus a test for the existence of predicates, but not of clausality.

5.3.4.1.1 Caki in Causatives Since periphrastic causatives involve two verbs which each lexically specify a subject, we expect them to allow either causer or causee to antecede *caki*. The example below, from Shibatani (1973a:292), confirms that this is so.

(487) a. Kim$_i$-ssi-nun ku yeca$_j$-lul **caki**$_{i,j}$**-uy** cha-eyse nayli-key
Kim-Mr.-Top that woman-Acc self-Gen car-Loc come.down-Adv
hay-ss-ta
do-Pst-Dec
'Mr. Kim$_i$ had the woman$_j$ get out of his$_i$/her$_j$ own car.'

b. Emeni$_i$-nun atul$_j$-eykey **caki**$_{i,j}$-uy os-ul ip-key hay-ss-ta
mother-Top son-Dat self-Gen clothes-Acc wear-Adv do-Pst-Dec
'The mother$_i$ had the son$_j$ put on her$_i$/his$_j$ own clothes.'

(488) a. Swuni$_i$-ka Chelswu$_j$-eykey **caki**$_{i,j}$-lul chingchan.ha-key hay-ss-ta
I-Nom Chelswu-Dat self-Acc praise-Adv do-Pst-Dec
'Swuni$_i$ made Chelswu$_j$ praise herself$_i$/himself$_j$.

b. Chelswu$_i$-ka Swuni$_j$-eykey **caki**$_{i,j}$-lul tayhak-uy hakcek-ey
Chelswu-Nom Swuni-Dat self-Acc university-Gen register-Dir
olli-key hay-ss-ta
record-Adv do-Pst-Dec
'Chelswu$_i$ made Swuni$_j$ register himself$_i$/herself$_j$ for college.

If the anaphora facts remained as simple as the ones presented above, we could say as part of our HPSG account that *caki* has a condition on it requiring a SUBJ antecedent, and completely explain the facts about *caki* and periphrastic causatives. The HPSG sign for *chingchan.ha-key hay-ss-ta* 'cause to praise' shows that the causer argument is the SUBJ of the main clause, while the causee bears the same index as the SUBJ subcategorized for by *chingchan.ha-key*, shown here as a COMP-DTR.

(489)

$$\begin{bmatrix} \text{PHON} & \langle \text{ chingchan.ha-key hay-ss-ta } \rangle \\ \text{SYNSEM} & \begin{bmatrix} \text{CAT} & \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \textit{verb} \end{bmatrix} \\ \text{SUBJ} & \left\langle \text{NP}_{\boxed{1}} \right\rangle \\ \text{COMPS} & \left\langle \text{NP}_{\boxed{2}},\ \text{NP}_{\boxed{3}} \right\rangle \end{bmatrix} \\ \text{CONTENT} & \begin{bmatrix} \text{RELN} & \text{cause} \\ \text{CAUSER} & \boxed{1} \\ \text{CAUSEE} & \boxed{2} \\ \text{SOA-ARG} & \begin{bmatrix} \text{RELN} & \text{praise} \\ \text{PRAISER} & \boxed{2} \\ \text{PRAISED} & \boxed{3} \end{bmatrix} \end{bmatrix} \end{bmatrix} \\ \text{COMP-DTRS} & \left\langle \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \textit{verb} \end{bmatrix} \\ \text{SUBJ} & \left\langle \text{NP}_{\boxed{2}} \right\rangle \\ \text{COMPS} & \left\langle \text{NP}_{\boxed{3}} \right\rangle \end{bmatrix} \right\rangle \end{bmatrix}$$

Lexical causatives are the more interesting case, since the existence of two different predicates is less readily apparent. If a property singling out only expressed and unexpressed subjects, and not other arguments, belonged to the causer and causee in a lexical causative, it would argue for the linguistic representation of two distinct predicates in these verbs, presumably the verb stem and the causative suffix.

The status of lexical causatives with respect to anaphora was debated in the early transformational accounts, where expressed or unexpressed subjects determine the presence of a separate clause. Shibatani (1973a:293), arguing against a complex underlying structure for lexical causatives, claims that lexical causatives do not permit *caki* to take the cause as an antecedent. He gives the following examples.

(490) a. Kim$_i$-ssi-nun ku yeca$_j$-lul **caki**$_{i,*j}$-uy cha-eyse nayli-ess-ta
Kim-Mr.-Top that woman-Acc self-Gen car-Loc bring-Pst-Dec
'Mr. Kim$_i$ brought the woman$_j$ out of his$_i$/*her$_j$ own car.'

b. Emeni$_i$-nun atul$_j$-eykey **caki**$_{i,*j}$-uy os-ul ip-hi-ess-ta
mother-Top son-Dat self-Gen clothes-Acc wear-Caus-Pst-Dec
'The mother$_i$ had the son$_j$ put on her$_i$/*his$_j$ own clothes.'

Patterson (1974:28) argues against this position, and gives examples where *caki* can take either causer or causee as antecedent in lexical causatives.

(491) a. Sensayngnim$_i$-i haksayng$_j$-eykey **caki**$_{i,j}$ mes-taylo cakmwun-ul
teacher-Nom student-Dat self style-with essay-Acc
ssu-i-ess-ta
write-Caus-Pst-Dec
'The teacher$_i$ made the student$_j$ write an essay in his$_{i,j}$ own style.'

b. Emeni$_i$-ka ai$_j$-eykey **caki**$_{i,j}$-uy meli-lul kam-ki-ess-ta
mother-Nom child-Dat self-Gen hair-Acc wash-Caus-Pst-Dec
'The mother$_i$ made the child$_j$ wash her$_{i,j}$ hair.'

Many of the speakers I have consulted generally agree with Patterson's position, and allow causees in lexical causatives to antecede *caki*. Thus, we would take this as evidence that the lexical causative involves two separate predicates which each have their own subject, if we were not to encounter the additional data refuting the subject-oriented account.

5.3.4.1.2 Non-subject Antecedents For the ability to function as an antecedent of *caki* to function as a test for grammatical subjecthood, it needs to pick out only grammatical subjects, and not other additional NP's which might share semantic characteristics with subjects. Determining exactly what may antecede *caki* is crucial for deciding whether to posit complex underlying structure on the basis of *caki* antecedentship, as in the case of the lexical causatives.

Extensive research on Korean anaphora (Y. Cho 1985, Chang 1986, O'Grady 1987, Im 1987, C. Lee 1988, K. Hong 1991b) has demonstrated that *caki* also takes antecedents which are not grammatical subjects. These antecedents can be experiencers, patients, or possessors, among other possibilities, with various grammatical relations. Some examples from K. Hong (1991b) and O'Grady (1987) are given below.

(492) a. Yenghi$_i$-ka Minswu$_j$-lul Swuni$_k$-eykey **caki**$_{i,j,k}$**-**uy pang-eyse sokay
Yenghi-Nom Minswu-Acc Swuni-Dat self-Gen room-in introduce
hay-ss-ta
do-Pst-Dec
'Yenghi$_i$ introduced Minswu$_j$ to Swuni$_j$ in his$_j$/her$_{i,k}$ room.'

b. Na-nun Minswu$_i$-ey.uyhay **caki**$_i$**-**uy hyeng-eykey sokay
I-Top Minswu-by self-Gen brother-Dat introduce
toy-ess-ta
become-Pst-Dec
'I was introduced to his brother by Minswu.'

(493) a. Nay-ka John$_i$-uy yeph-eyse Tom$_j$-ul **caki**$_j$-uy kapang-ulo mil-ess-ta
I-Nom John-Gen side-Loc Tom-Acc self-Gen bag-with push-Pst-Dec
'Near John$_i$, I pushed Tom$_j$ with self$_j$'s bag.

b. Nay-ka John$_i$-uy cip-eyse Tom$_j$-ey.kwan.ha.n kisa-ey.tay.haye
I-Nom John-Gen house-Loc Tom-about article-about
caki$_{i,j}$**-**wa yeki.hay-ss-ta
self-with talk-Pst-Dec
'In John$_i$'s house, I talked about the article on Tom$_j$ with self$_{i,j}$.

There are various approaches to the problem of reconciling the general subject preference of *caki* with the additional non-subject antecedent possibilities. O'Grady (1987:257) states that non-subject antecedents for *caki* are possible when the subject does not match the specifications that *caki* puts on its referent, namely, that it be third person and human, with grammatical relations constraining the choice of antecedent. He illustrates this point with the direct object and the genitive antecedents in his examples below.

(494) a. Nay-ka John$_i$-ul **caki**$_i$-uy cip kunche-eyse po-ass-ta
I-Nom John-Acc self-Gen house near-Loc see-Pst-Dec
'I saw John$_i$ near self$_i$'s home.'

b. John$_i$-uy kwake-ka **caki**$_i$-lul koylophi-n-ta
John-Gen past-Nom self-Acc ail-Pres-Dec
'John$_i$'s past ails self$_i$.'

O'Grady (1987) argues for a "Priority Principle", which determines which of the possible antecedents for *caki* will be the actual antecedent, based on a ranking of grammatical relations where subjects are preferred, other verbal arguments come next, and other NP's are the least favored antecedents. If more than one possible antecedent belongs to the same rank, then the Priority Principle will not decide between them, and the sentence will be ambiguous between the two possible antecedentships. The following example from O'Grady demonstrates ambiguity between two possible subject antecedents.

(495) Nay-ka Bob$_i$-eykey John$_j$-i **caki**$_{i,j}$-lul co.a.ha-n-ta-ko mal.hay-ss-ta
I-Nom Bob-Dat John-Nom self-Acc like-Pres-Dec-Quot say-Pst-Dec
'I said to Bob$_i$ that John$_j$ liked self$_{i,j}$.'

Some speakers apparently find ambiguity in sentences where the possible antecedents are of different ranks, directly counter to the Priority Principle. O'Grady (1987) cites H. Lee (1982) and Y. Cho (1985) for discussing such judgments, in examples like the following. O'Grady suggests that these speakers have a reduced hierarchy, in which all verbal arguments, including the subject, occupy the preferred rank, and all other NP's occupy a single rank below it. O'Grady also discusses semantic factors like point of view which can outweigh the Priority Principle, to account for points raised by I. Lee (1978) and Y. Cho (1985).

(496) John$_i$-i Tom$_j$-ul **caki**$_{i,j}$-uy pang-eyse mil-ess-ta
John-Nom Tom-Acc self-Gen room-in push-Pst-Dec
'John$_i$ pushed Tom$_j$ in self$_{i,j}$'s room.'

O'Grady (1987) also adds "The Anaphor Principle", which states that "An anaphor (reflexive pronoun) must be bound by an NP contained in a phrase which is higher or equal (in the hierarchy [defined by his Priority Principle])". His "Anaphor Principle" rules out ungrammatical sentences like the following examples.

(497) a. *John$_i$-ul **caki**$_i$-ka piphan.hay-ss-ta
John-Acc self-Nom criticize-Pst-Dec
'Self$_i$ criticized John$_i$.'

b. *Tom$_i$-uy chayk-ul **caki**$_i$-ka po-ass-ta
Tom-Gen book-Acc self-Nom see-Pst-Dec
'Self$_i$ saw Tom$_i$'s book.'

c. *John$_i$-i ssu-n chayk-ul **caki**$_i$-ka ilk-ess-ta
John-nom write-PstMod book-Acc self-Nom read-Pst-Dec
'Self$_i$ read the book that John$_i$ wrote.'

K. Hong (1991b:19–24) concludes that subjects, which are not necessarily conscious, may bind *caki* and that non-subjects whose referents are conscious of the situation depicted in the sentence may also bind *caki*. I will not codify these or any other treatments of *caki* in HPSG, since the HPSG analysis of Korean anaphora will not bear directly on the analysis of periphrastic or lexical causatives.[6]

The fact that *caki* may take non-subject antecedents as well as subject antecedents does not give us any reason to doubt the proposed account of causatives. Without the subject antecedent restriction, and thus the necessity of referring to grammatical subjects within the theory, Korean anaphora facts may be compatible with a greater number of possible accounts of the causative.

Not needing to refer directly to grammatical subjecthood does relieve us of the necessity to make accessible a greater amount of morphological information than may be desirable. We were able to refer to the feature SUBJ of the verb which was a COMP-DTR in (489), since HPSG signs for phrases do include the signs of their daughters. However, it is generally assumed to be theoretically desirable for syntactic processes not to be able to access information about morphological components of lexical items. If we needed to make available the SUBJ value of the verb stem in a lexical causative, we would need to include the verb stem's sign as part of a MORPH-DTRS list. This case is thus very different from morphological processes which refer to a subject, such as in attaching the subject honorification suffix and specifying the subject as honorable. Morphological processes could have access to the morphological structure of an item, but syntactic processes cannot.

5.3.4.2 Casin as subject test

After it became clear that the ability to function as an antecedent of *caki* could not be a test for grammatical subjecthood, researchers turned to the possibility that another of Korean's several anaphors might be able to fill *caki*'s intended role instead. With

[6]See Iida (1992:220–223) for a discussion of the very similar interaction of *zibun* binding and the two forms of Japanese causatives. The traditional analysis of *zibun* as requiring a subject to bind it had been used to distinguish the productive, complex *sase* causatives in Japanese from the non-productive lexical causatives, based on data showing that *sase* causative causees could antecede *zibun*, while lexical causative causees could not. Iida provides examples of acceptable lexical causative sentences with causees anteceding *zibun*, and shows how the contextual factors responsible for determining acceptable *zibun* binding in her HPSG analysis distinguish the acceptable lexical causative *zibun* sentences from the unacceptable ones.

this goal in mind, Youn (1990:29) proposed that *casin* had a weak subjecthood requirement on its antecedents: they had to be metastratal 1's, in Relational Grammar. This kind of subject would include an active subject, a passive "advanced" subject, and a demoted subject in the passive.[7] Examples from his thesis illustrating these possibilities are given below.

(498) a. Chelswu$_i$-ka Swuni$_j$-eykey **casin**$_{i,*j}$-uy sacin-ul cwu-ess-ta
Chelswu-Nom Swuni-Dat self-Gen picture-Acc give-Pst-Dec
'Chelswu$_i$ gave a picture of self$_{i,*j}$ to Sooni$_j$.'

b. Yengswu$_i$-ka Chelswu$_j$-ey.uyhay **casin**$_{i,*j}$-uy pang-ey katwu-e
Yengswu-Nom Chelswu-by self-Gen room-in lock-Cmp
ci-ess-ta
PasAux-Pst-Dec
'Youngsoo$_i$ was locked by Chelswu$_j$ in self$_{i,*j}$'s room.'

c. Ku kulim-i Chelswu$_i$-ey.uyhay **casin**$_i$-uy secay-eyse kuli-e
the picture-Nom Chelswu-by self-Gen study-in paint-Cmp
ci-ess-ta
PasAux-Pst-Dec
'The picture was painted by Chelswu$_i$ in self$_i$'s study.'

This position on the possible antecedents of *casin* does not allow any single notion within traditional HPSG to be the determining factor, since being on a SUBJ list will not include "demoted" subjects in passive, and having the "highest" semantic role will not include the "advanced" subject in passive. However, the addition of ARG-S

[7] Youn also intends the metastratal 1 designation to cover an argument bearing the experiencer role, as in his example listed in (i) below:

(i) Swuni$_i$-eykey-nun **casin**$_i$-uy ttal-i kuliw-ess-ta
Swuni-Dat-Top self-Gen daughter-Nom miss-Pst-Dec
'Swuni$_i$ missed self$_i$'s daughter.'

K. Hong (1991b:147) argues that the experiencer in a sentence such as (i) is the grammatical subject. Adopting her position assimilates the analysis of sentences like (i) to that of more straightforward sentences, with nominative-marked subjects.

("argument structure") to HPSG (Manning and Sag 1995) may allow for an account covering a generalization of this kind by referring to both ARG-S and the valence lists SUBJ and COMPS, since the highest element on ARG-S will not be demoted in passive, and experiencers could be ranked higher than patients on ARG-S, for binding purposes, while patients rank higher than experiencers in obliqueness, as listed on the COMPS list. There is no consensus, though, that Youn's position completely covers the possible antecedents for *casin*. Hong (1991b:24) points out that Im (1987:104) argues that *casin* may be bound by non-subject arguments, though it appears to require binding by grammatical subjects more than *caki* does.

For our purposes in examining the periphrastic and lexical causatives, *casin* has the same status as *caki* in not being a reliable test for grammatical subjecthood and complex structure. The judgments about the possibility of the causer and the causee being antecedents for *casin* are similar to the judgments for *caki*. In the periphrastic causative sentences in (499), *casin* can take either causer or causee as antecedent.

(499) a. Swuni$_i$-ka Chelswu$_j$-eykey **casin**$_{i,j}$-ul chingchan.ha-key hay-ss-ta
I-Nom Chelswu-Dat self-Acc praise-Adv do-Pst-Dec
'Swuni$_i$ made Chelswu$_j$ praise herself$_i$/himself$_j$.

b. Chelswu$_i$-ka Swuni$_j$-eykey **casin**$_{i,j}$-ul tayhak-uy hakcek-ey
Chelswu-Nom Swuni-Dat self-Acc university-Gen register-Dir
olli-key hay-ss-ta
record-Adv do-Pst-Dec
'Chelswu$_i$ made Swuni$_j$ register himself$_i$/herself$_j$ for college.

Similarly, in the lexical causative sentence in (500), the causer and causee are both appropriate antecedents for *casin*.

(500) Sensayngnim$_i$-i haksayng$_j$-eykey **casin**$_{i,j}$**-i** wen.ha-nun-taylo cakmwun-ul
teacher-Nom student-Dat self-Nom wish-Pres-as essay-Acc
ssu-i-ess-ta
write-Caus-Pst-Dec
'The teacher$_i$ made the student$_j$ write an essay according to his$_{i,j}$ own wishes.'

Thus, the *casin* facts leave us in the same situation as the *caki* facts. The proposed analysis of periphrastic and lexical causatives is consistent with all the anaphora facts, but these facts give us no precise information on linguistic structure.

5.3.4.3 Conclusion: Anaphora

Although Korean anaphors[8] have a tendency to prefer subjects as antecedents, there appears to be no strict grammatical condition to that effect. In periphrastic and lexical causatives, both causer and causee can antecede anaphors. These facts are all completely consistent with the current account, and do not help us to distinguish the various possible accounts.

In conclusion, evidence from Korean anaphoric binding, like the evidence from subject honorification and plural copying, is perfectly consistent with my analysis, and does not yield any interesting distinctions between competing accounts. I now turn to areas which pose more direct challenges to my analysis, and show how my account meets these challenges.

5.4 Problems Raised for a Monoclausal Analysis

In this section, I discuss various problems which have been raised to argue against a monoclausal analysis of periphrastic causatives. The problems based on passive and object honorification deal with expected properties of multiple objects within a clause. The problem stemming from resumptive pronouns and quantifier float is that of whether these items signify otherwise null subjects and usually non-apparent clause distinctions.

In all of these cases, I demonstrate that the reputed properties of grammatical relations do not in fact hold, so that they cannot be taken as evidence against the proposed analysis of causatives.

[8] I have only discussed the most common Korean anaphors in the linguistic literature, namely *caki*, *casin*, and *cakicasin*. While I know of no reason to expect different behavior from Korean's other anaphors, it would be interesting for future research to examine the behavior of *ce*, *susulo*, *sonswu*, and other pronouns + *casin*, namely, *na-casin* 'myself', *ne-casin* 'yourself', *ku-casin* 'himself'/'herself', in addition to the reciprocal *selo*.

5.4.1 Passive

E. Cho (1987, 1988:185–189) argues a point concerning passivization which many have taken to give solid support to a biclausal analysis of the periphrastic causative. The argument states that a monoclausal causative of a transitive verb ought to permit its lower object as well as its causee to be subjects, yielding two possible corresponding passive sentences. The generally accepted facts about passive of Korean periphrastic causatives are that only the causee may passivize. The example in (501) illustrates this fact, with an acceptable passive with a causee subject in (501a) and an ungrammatical passive with a lower theme as subject in (501b).

(501) a.

Emeni-ka	atul-eyuyhayse	casin-uy	cip-ey	tolaka-key
mother-Nom	son-by	self-Gen	house-to	return-Adv

toy-ess-ta
PasCausAux-Pst-Dec
'Mother was made by her son to return to her own house.'

b.

*Os-i	emeni-eyuyhayse	atul-eykey	ip-key
clothes-Nom	mother-by	son-Dat	put.on-Adv

toy-ess-ta
PasCausAux-Pst-Dec
'Clothes were made to be put on the son by the mother.'

The argument that a monoclausal causative should permit either the causee or the lower theme to be subjects of passives receives a solid basis from the apparent existence of precisely these facts for the indisputedly monoclausal lexical causative. The lower theme is the passive subject in (502a), while the causee appears to be the passive subject in (502b).

(502) a.

Os-i	Mary-eykey	ip-hi-e	ci-ess-ta
Clothes-Nom	Mary-Dat	wear-Caus-Cmp	PasAux-Pst-Dec

'The clothes were made to be worn by Mary.'

b. Mary-ka os-i ip-hi-e ci-ess-ta
Mary-Nom clothes-Nom wear-Caus-Cmp PasAux-Pst-Dec
'Mary was made to put on the clothes.'

In this section, I first describe the several forms passive takes in Korean, then I outline the basis for the argument against a monoclausal periphrastic causative. I review the literature supporting both the single passive and dual passive analyses for double object verbs, and adopt the single passive position that double nominative passives are Focus sentences with the same subject as the ordinary theme passive. I contend that the Focus analysis for these passives allows us to explain semantically why Focus passives of periphrastic causatives are not as generally acceptable as those of lexical causatives, and present new data contradicting previous assumptions that such double nominative passives never occur in periphrastic causatives. This new data, in conjunction with the single passive analysis for Korean, rebuts the presumption that the lower theme of the periphrastic causative should passivize, in order to permit a monoclausal analysis of the periphrastic causative. Thus, passive in Korean is completely compatible with my analyses of the lexical and periphrastic causatives. I demonstrate this compatibility with detailed HPSG analyses of passive of each type of causative, and close the section with an argument that a dual passive analysis could not simply link passivization possibilities to semantic clausality.

5.4.1.1 Passive In Korean

Since there are several forms of passive in Korean, I review the various kinds here before discussing the specific problem posed for the causative construction. Two of these types will be directly relevant to the problem, namely, the productive periphrastic passives formed with the auxiliary verbs *ci-ta* and *toy-ta*.

5.4.1.1.1 Ci- Passive The most commonly discussed passive construction in Korean is the productive passive involving the passive auxiliary *ci-ta* and a verbal complement with the verbal suffix *-e*.[9] An example from K. Hong (1991b) is given below.

[9] This suffix is realized as *-a* following a syllable with the vowels /o/ or /a/.

(503) Cip-i Minswu-ey.uyhaye ci-**e** **ci**-ess-ta
house-Nom Minswu-by build-Cmp PasAux-Pst-Dec
'The house was built by Minswu.'

K. Hong (1991b:232) states that *ci* passives often sound awkward, and argues in her thesis that this results from *ci* passives being the only instance in which the subject is an affected argument but is not the responsible party for the action described. She (1991b:239) links this lack of responsibility to a preference for inanimate subjects in the *ci* passive. My experience in gathering data on Korean passives for this section has demonstrated to me that many speakers dislike the periphrastic passive, and feel that it sounds unnatural or often like a translation of another language into Korean. K. Hong (1991b:58 fn.38) expresses similar sentiments. Thus data based on passive judgments is often more shaky and uncertain than in other areas, a fact which makes me hesitant to weight passive data heavily in considerations of issues in this thesis.

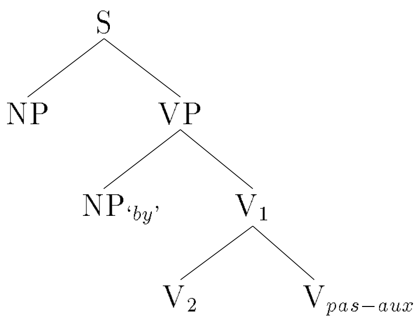
The core of my passive analysis is expressed in the HPSG sign given in (504). The auxiliary *ci-ta* selects for a passivized verb, through requiring that its complement verb be of VFORM passive. *ci-ta* identifies its own subject with the passive verb's subject and takes the COMPS of the passive verb as its own. This structure sharing is indicated by the numerical tags $\boxed{2}$ for the subject and $\boxed{3}$ for the COMPS. *ci-ta* also takes the same CONTENT as the passivized verb, as indicated by the shared boxed numerical tag $\boxed{4}$.

(504)

$$\begin{bmatrix} \text{PHON} \ \langle \text{ ci-ta } \rangle \\ \text{SYNSEM} \begin{bmatrix} \text{CAT} \begin{bmatrix} \text{HEAD} \begin{bmatrix} verb \end{bmatrix} \\ \text{SUBJ} \ \boxed{2} \\ \text{COMPS} \left\langle \begin{bmatrix} \text{HEAD} \begin{bmatrix} verb \end{bmatrix} \\ \text{LEX} \ + \\ \text{VFORM passive} \\ \text{SUBJ} \ \boxed{2} \\ \text{COMPS} \ \boxed{3} \\ \text{CONTENT} \ \boxed{4} \end{bmatrix} \right\rangle \oplus \boxed{3} \end{bmatrix} \\ \text{CONTENT} \ \boxed{4} \end{bmatrix} \end{bmatrix}$$

(505) gives a tree illustrating the structure of a passive sentence. The verbal complex, where V_2 illustrates the passivized verb, is a necessary constituent because of the passive auxiliary's requirement of a [LEX +] complement, which can only occur through the Lexical Complex Schema.

(505)



I now examine more closely the issue of why I choose this particular analysis of the *ci-* passive.

5.4.1.1.2 Passive of Lexical Verb instead of by Auxiliary One might think that passive should be analyzed similarly to the causative, with argument composition producing the change in grammatical relations from those of the lower verb. Three facts in particular give prima facie motivation for the argument composition analysis of passive: the constituent structure of the passive verb and auxiliary, the common suffix borne by the passivized verb, and the fact that this approach has been found useful for passives in other syntactically similar languages.

All of the arguments about the constituent structure of verbal complexes given in Chapter 2 apply to the passivized verb and the passive auxiliary. Discourse items like the topic marker *-nun* may intervene between the passive verb and the passive auxiliary, but full phrases do not. The negative markers *an* and *mos* can take scope over the verbal complex as a whole.[10] One might attempt to closely relate the structure in which two [LEX +] argument-taking heads occur together to the process of argument composition, so that the structure would never occur without this process.

The second piece of prima facie evidence for the argument composition analysis of the *ci-* passive comes from the distribution of the *-e* suffix on verbal complements. The suffix *-e* which the lower verb takes in the passive, appears on verbs in several other constructions as well, where it has no passive meaning. For example, the auxiliary *po-ta* 'try' takes a verbal complement ending in *-e*, as does the benefactive auxiliary *cwu-ta*. Examples are given below.

(506) a. Nay-ka kimchi-lul mek-**e** po-ass-ta
I-Nom kimchee-Acc eat-Cmp try-Pst-Dec
'I tried eating kimchee.'

b. Swuni-ka na-hanthey chayk-ul ilk-**e** cwu-ess-ta
Swuni-Nom me-Dat book-Acc read-Cmp give-Pst-Dec
'Swuni read a book for me.'

Since the sentences in (506) involve verbs ending in the suffix *-e* where there appears to be no passive meaning, an argument composition analysis would allow the verb ending in *-e* in the passive to be an instance of the same lexical sign, instead of having homophonous active and passive verbal signs.

Finally, the argument composition analysis of Korean passive would maintain the parallel in HPSG analyses of German and Korean, where both languages can

[10] In fact, they cannot occur between the verbs, differing from the causative facts. Sells (1991, 1994) attributes this difference to argument structure differences. I discuss these facts in the Negation section of Chapter 3.

be analyzed as having many auxiliaries which form verbal complexes with argument composition (Hinrichs and Nakazawa 1990). Recent work by Kathol (1994) indicates that German passives may also involve argument composition.

Despite the clear appeal of advancing a constituent-structure based hypothesis about argument composition, with possible parallels in German, as well as reducing the number of homophonous signs in the lexicon, it appears that there is compelling evidence against the argument composition analysis of Korean passive. This evidence comes from "spurious" plural markers on verbs which require that verb to have a plural subject.

Since spurious plural marking occurs lexically, we can thus determine the number of the subject of the lexical verb combining with the passive auxiliary. If the passive agent and the passive subject differ in number, we can determine which of the two is the subject of the lexical verb. Under the argument composition analysis, the demotion of the subject occurs only in the mother node of the verbal complex, through the subcategorization specifications of the passive auxiliary. Under the lexical passivization analysis, the demotion of the subject occurs in the lexical sign of the verb ending in the *-e* suffix before it combines with the passive auxiliary.

As discussed in Section 5.3.2, the plural suffix *-tul* can appear on a verb if its subject is plural. The other possible source of a plural marker on a verb is if that verb is the head of a complement in a higher clause with a plural subject. If the higher clause has a singular subject, then this alternate source of plural marking is removed and the subject of the verb with the plural marker must be plural (Y. Kim 1992b).

In terms of our passive examples, the passive subject is the subject of the entire passive sentence. A plural passive subject would thus license plural marking on the passive auxiliary as well as on its verbal complements, regardless of their own subjects. This would not provide us with useful information, so we need to maintain a singular passive subject.

The crucial plural copying evidence will come from sentences with a plural passive agent. A plural passive agent should license plural copy on the verb combining with the passive auxiliary if the passive demotion occurs only in the mother node through argument composition. If the verb is lexically passivized before it combines with the passive auxiliary, then the passive agent is not the subject of any node, and so it will not license plural copy on a verb ending in *-e*.

The crucial data is given in (507). Here we see that the plural passive agent *isascimpwunpanepca-tul-ey.uyhayse* 'by the movers' does not license the plural marker *-tul* on the verb *olmki-e-tul* 'carry'.[11] The explicit inclusion of the plural marker *-tul* on the passive agent *isascimpwunpanepca-tul-ey.uyhayse* 'by the movers' ensures that this NP must be interpreted as plural, since unmarked NP's may be interpreted as either singular or plural in Korean. This data agrees with the lexical passivization hypothesis and is incompatible with the argument composition hypothesis.

(507) *Ku khu.n phiano-ka isascimpwunpanepca-tul-ey.uyhayse nay cip-ey
that big piano-Nom mover-Plur-by my house-Dir
olmki-e-**tul** ci-ess-na po-ci.yo
carry-Cmp-Plur PasAux-Pst-Cmp seem-End
'It seems that the big piano was carried into my house by the movers.'

If the passive subject is plural while the passive agent is singular,[12] the appearance of a plural marker on the lower verb is grammatical. This can either reflect agreement with the plural subject or it can also reflect the lower verb's status as a complement of the higher verb. For this reason, the sentence in (507) is more important to this argument, since it clearly depends on the number of the lower verb's subject.

(508) Manh.un sangca-tul-i tong.si-ey isascimpwunpanepca-ey.uyhayse
many box-Plur-Nom same.time-at mover-by
olmki-e-**tul** ci-ess-na po-ci.yo
carry-Cmp-Plur PasAux-Pst-Cmp seem-End
'It seems that many boxes were carried at the same time by the mover.'

[11]Without the plural marker on the verb, this sentence is perfectly grammatical.

[12]Note that Korean does not obligatorily mark plural on NP's, so it is important to consider (508) under the interpretation given in the English translation, where the passive agent is singular and not an unmarked plural.

With the window onto lexical subcategorization provided by plural copying we can see that passive applies to a verb before it combines with the passive auxiliary.

A possible benefit of this view is a straightforward account of the mysterious "double passive" in Korean. In examples like (509), the lexical passive applies to the verb stem *mek* 'eat', as well as the periphrastic passive.

(509) Kwaca-ka mek-hi-e ci-ess-ta
cookie-Nom eat-Pass-Cmp PasAux-Pst-Dec
'The cookie was eaten.'

Yet the meaning is the same as in the single passives with only the lexical passive suffix, as in (510a), or only the periphrastic passive auxiliary, as in (510b).[13]

(510) a. Kwaca-ka mek-hi-ess-ta
cookie-Nom Pass-Pst-Dec
'The cookie was eaten.'

b. ??Kwaca-ka mek-e ci-ess-ta
cookie-Nom eat-Cmp PasAux-Pst-Dec
'The cookie was eaten.'

Under my analysis of passive VFORM verbal complements, the irregularity in double passives can be described as resulting from an input *-e* passive suffix which does not change anything about the passivized verb it attaches to, provided that the verb belongs to the select type of lexical passive verbs. In the syntax, these passive VFORM's are indistinguishable from ordinary passive VFORM's.

Under an argument composition analysis of passive, where syntactic combination changed the object into a subject of the clause, we would have to have two separate *ci-ta* auxiliaries for these two cases, one which selects for regular verbs and one which selects for lexical passives. I believe it is more natural to think of these double

[13]In fact, the double passive is the preferred means of expressing this sentence, with lesser acceptability found in either single passive. The issue of semantics behind this preference is outside the scope of this thesis.

passives as lexical exceptions or historical fossilizations of suffix plus root rather than attributing them to a second, specialized passive auxiliary.

The facts about plural copy provide us with concrete evidence of the passive status of this verb, in contrast to the vaguer esthetic considerations which favored placing the responsibility for passive on the passive auxiliary and argument composition. Argument composition will occur in this verbal complex so that the passive auxiliary can inherit the arguments of its sister verb, but the argument composition will not perform any reordering of arguments. Passivization will occur lexically with the addition of the passive suffix *-e* to a verb, and the passive auxiliary *ci-ta* will subcategorize for a passivized verb ending in *-e*.

5.4.1.1.3 *toy-ta* **Passive** When active sentences involve a verbal noun with the light verb *ha-ta* or a causative with the auxiliary *ha-ta*, the corresponding passive sentences most naturally involve the auxiliary *toy-ta* entirely replacing *ha-ta*.[14] As a main verb, *toy-ta* means 'become', in contrast to *ha-ta*, which means 'do'. The passive with the auxiliary *toy-ta* thus resembles the periphrastic passive with the auxiliary *ci-ta*, since that verb also has an inchoative sense in non-passive sentences.[15]

(511) gives an example of the verbal noun *haykyel* 'solution' in its active version with the auxiliary *ha-ta*, followed by the corresponding passive with *toy-ta*.

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[14]This is true for most verbal nouns; however, verbal nouns expressing violence, such as *salin* 'murder', are unacceptable when passivized by *toy-ta*, requiring instead the auxiliary *tang.ha-ta* 'suffer' (Young-mee Yu Cho, p.c.).

(i) a. *Sey salam-i salin toy-ess-ta
three people-Nom murder become-Pst-Dec
'Three people were murdered.'

b. Sey salam-i salin tang.hay-ss-ta
three people-Nom murder suffer-Pst-Dec
'Three people were murdered.'

[15]This correspondence between inchoative and passive seen in a single auxiliary with both senses is also found in English, with *get* used for both passive and inchoative, as well as in German with the passive auxiliary *werden* also having both these uses.

(511) a. Haksayng-tul-i mwuncey-lul haykyel **ha**-yss-ta
student-Plur-Nom problem-Acc solve do-Pst-Dec
'The students solved the problem.'

b. Mwuncey-ka haykyel **toy**-ess-ta
problem-Nom solve become-Pst-Dec
'The problem was solved.'

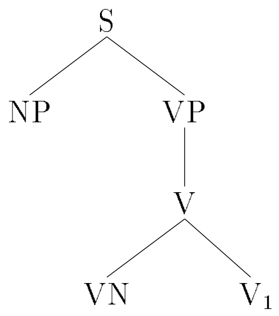
In (512), we see an example of a causative sentence in its active version with *ha-ta* and its passive version with *toy-ta*.[16]

(512) a. Nay-ka haksayng-tul-eykey mwuncey-lul haykyel ha-key **ha**-yss-ta
I-Nom student-Plur-Dat problem-Acc solve do-Adv do-Pst-Dec
'I made the students solve the problem.'

b. Haksayng-tul-i mwuncey-lul haykyel ha-key **toy**-ess-ta
student-Plur-Nom problem-Acc solve do-Adv become-Pst-Dec
'The students were made to solve the problem.'

The *toy-* passive, like many other constructions studied in this thesis, takes the verbal complex structure. A tree for the examples in (511) are given below in (513), where V_1 represents either *hay-ss-ta* in (511a) or *toy-ess-ta* in (511b).

(513)



[16]For some speakers, the inchoative sense of *toy-ta* predominates in a sentence like (512b), to the extent that it may block a causative-passive interpretation. However, *toy-* passives have been the standard form of passivizing causatives in the literature, as in Gerdts (1986), Y. Choi (1988), and O'Grady (1991), and thus I will continue to treat these sentences as passive in order to address the passivization argument against monoclausal periphrastic causatives.

My analysis of the *toy-* passive includes separate lexical entries for the *toy-ta* which passivizes verbal nouns and the *toy-ta* which passivizes causatives.[17] When *toy-ta* combines with a verb in the *-key* form, it adds the semantic sense of a CAUSE relation, and provides a semantic role for a CAUSER which can be added to the COMPS list by the Adjunct Addition Lexical Rule. The subject of the lower *-key*-marked verb is identical to the subject of the higher clause headed by *toy-ta*. The lexical entry for the *toy-ta* which combines with *-key* form verbs to form passives of causatives is given in (514).

(514)

$$\begin{bmatrix} \text{PHON} & \langle \text{ toy-ta } \rangle \\ \text{CAT} & \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \textit{verb} \end{bmatrix} \\ \text{SUBJ} & \left\langle \text{NP}_{\boxed{1}} \right\rangle \\ \text{COMPS} & \left\langle \begin{bmatrix} \text{HEAD} \begin{bmatrix} \textit{verb} \end{bmatrix} \\ \text{VFORM -key} \\ \text{LEX} + \\ \text{SUBJ} \left\langle \text{NP}_{\boxed{1}} \right\rangle \\ \text{COMPS } \boxed{2} \\ \text{CONTENT } \boxed{3} \end{bmatrix} \right\rangle \oplus \boxed{2} \end{bmatrix} \\ \text{CONTENT} & \begin{bmatrix} \text{RELN cause} \\ \text{CAUSER} \\ \text{CAUSEE } \boxed{1} \\ \text{SOA-ARG } \boxed{3} \end{bmatrix} \end{bmatrix}$$

[17]The sort hierarchy in the lexicon would be able to describe the shared properties of all *toy-ta* verbs, from the plain verb meaning “become” to the passive auxiliaries for verbal nouns and for causatives. The sort hierarchy also would capture the shared characteristic of *ha-ta* ‘do’ and *toy-ta* ‘become’ that, as auxiliaries, they both subcategorize separately for verbal nouns, with no causative meaning, and for *-key* form verbs, with a causative meaning. *-key* form verbs also occur as adverbs without a causative sense, so the causative sense cannot be eliminated from the auxiliaries in favor of the causativized verbs. However, it is possible that an a subtle semantic analysis may be able to posit lexical entries for *-key* form verbs, verbal nouns, *ha-ta*, and *toy-ta* which interact in precisely the necessary ways to produce causative meanings only in the appropriate combinations. This kind of analysis would require more fine-grained semantics than falls within the scope of this thesis.

In contrast, when *toy-ta* combines with a verbal noun, it "passivizes" the verbal noun with no additional causative sense, and the subject of *toy-ta* is the object of the verbal noun, while the verbal noun's subject is present only semantically, unless it is identified with an adjunct on the verbal noun's COMPS list, which has been inherited to *toy-ta*'s COMPS list.

(515)

$$\begin{bmatrix} \text{PHON} \ \langle \text{ toy-ta } \rangle \\ \text{SYNSEM} \begin{bmatrix} \text{CAT} \begin{bmatrix} \text{HEAD} \begin{bmatrix} \textit{verb} \end{bmatrix} \\ \text{SUBJ} \ \boxed{2} \\ \text{COMPS} \left\langle \begin{bmatrix} \text{HEAD} \begin{bmatrix} \textit{verbal noun} \end{bmatrix} \\ \text{LEX} \ + \\ \text{SUBJ} \ \boxed{1} \\ \text{COMPS} \ \boxed{2} \oplus \boxed{3} \\ \text{CONTENT} \ \boxed{4} \end{bmatrix} \right\rangle \oplus \boxed{3} \end{bmatrix} \\ \text{CONTENT} \ \boxed{4} \end{bmatrix} \end{bmatrix}$$

For both forms of *toy-ta*, the COMPS list items of the lower predicate (other than the direct object of a verbal noun) are inherited through argument composition to *toy-ta*'s COMPS list.

In comparison with the *ci-* passive, the *toy-* passive involves more determination of structure by the head verb in the verbal complex, through argument composition and its own lexical specifications. The alternate analysis for *toy-* passives would have to involve the usually adverbial suffix *-key* performing both causative and passive, while a zero morpheme performs passive on the verbal noun. The resulting pattern of lexical entries seems to me to be too linguistically implausible to warrant much consideration.

The plural copy facts which argued for the passivizing properties of the *-e* suffix in the *ci-* passive do not shed light on the responsibility for passivization in the *toy-* passive. Y. Kim (1992b) divides plural copy facts into spurious plural marking on predicates, indicating a plural subject, and spurious plural marking on arguments, which indicate a distributive reading. Verbal nouns have an intermediate status between predicate and argument, in that they subcategorize for arguments but they do not bear any of their own tense, subject honorification, or mood inflection. Thus the division between types of plural copy would possibly allow both kinds of spurious plural marking on verbal nouns, which are predicates, as well as arguments of the light verb which heads their [LEX +] constituent. The following example indicates that spurious plural marking on verbal nouns is not limited to the distributive sense; moving a single piano would not be compatible with the repeated or parallel actions denoted by the distributive sense, and yet the plural marker *-tul* is grammatical on the verbal noun *wunpan* in (516). Thus, this spurious plural marker must reflect the plurality of the subject, *isascimpwunpanepca-tul-i* 'movers'.

(516) Isascimpwunpanepca-tul-i nay cip-ey ku khu.n phiano-lul wunpan-**tul**
movers-Plur-Nom my house-Dat that big piano-Acc carry-Plur
hay-ss-ta.
do-Pst-Dec
'The movers carried the big piano into my house.'

However, there is no way to tell whether the verbal noun bears the spurious plural as a reflection of the plurality of its own lexical subject, or in agreement with the plurality of the subject of the verb which bears all the tense, subject honorification, and mood marking for the verbal noun. In *toy-* passive sentences, plural marking is not possible on a verbal noun if the demoted agent is plural while the passive subject is singular, as seen in (517).[18]

(517) *Ku khu.n phiano-ka isascimpwunpanepca-tul-ey.uyhayse nay cip-ey
that big piano-Nom mover-Plur-by my house-Dat
wunpan-**tul** toy-ess-ta
carry-Plur become-Pst-Dec
'The big piano was carried into my house by the movers.'

[18]The sentence is completely grammatical without the spurious plural marker on the verbal noun *wunpan* 'carry'.

The impossibility of the spurious plural on the verbal noun in an example like (517) rules out the combination of analyses that the plural marking on the verbal noun reflects the plurality of its own lexical subject and that *toy-ta* performs passive through argument composition. Under that combination of analyses, plural marking on a verbal noun would reflect the plurality of the passive agent, not the passive subject.

Beyond ruling out that particular combination of analyses, we have no information to help us decide for or against the analysis in which every verbal noun has a passive counterpart with a passivizing zero morpheme and thus *toy-ta* in the *toy-* passive does not affect grammatical relations and merely bears inflection and inherits arguments in their current relations. Under this analysis, the impossibility of the plural marker on the verbal noun would reflect the lack of plurality of its lexical subject, the singular passive subject *phiano* 'piano'.

With a lack of any definitive information from plural copy, the linguistic implausibility of lexically passivized verbal nouns and lexically jointly causativized and passivized *-key* verbs becomes more important. Thus, my reading of the plural copy fact seen in (517) is that the verbal noun's plural marking is agreement with the subject of the auxiliary verb subcategorizing for the verbal noun. The verbal noun and the auxiliary verb share values for information reflected by any verbal inflection borne by the auxiliary verb; in plural copy, I believe that the verbal noun and the auxiliary verb share values for the information specified by the predicate inflection for a plural subject. Under this supposition, the verbal noun shares the value of the passivizing verb, rather than reflecting its own lexical subject's number.

5.4.1.1.4 Lexical Passive A third form of passive discussed in the literature is the non-productive lexical passive, which involves a suffix, realized as one of the phonologically similar allomorphs *-i, -hi, -ki, -li*, on a limited set of verb stems.[19]

[19] K. Park (1986, 1988) has argued that the lexical causative and lexical passive are both manifestations of a single suffix which either adds or subtracts an argument, since in many cases the verb stems which undergo lexical causative and the verb stems which undergo lexical passive are the same, and involve the same suffix. However, this position is not generally accepted. There are instances where a verb stem takes different suffixes for the lexical causative and the lexical passive, such as

Some examples from K. Hong (1991b) and K. Park (1986) are given below, with the lexical passive morpheme in boldface.

(518) a. Swuni-ka Minswu-eykey cap-**hi**-ess-ta
Swuni-Nom Minswu-Dat catch-Pass-Pst-Dec
'Swuni was caught by Minswu.'

b. Ku chayk-i haksayng-tul-eykey ilk-**hi**-ess-ta
that book-Nom student-Plur-Dat read-Pass-Pst-Dec
'The book was read by the students.'

The lexical passive will not be relevant for our discussion of passive of causatives because the lexical passive suffix does not attach to any lexical causative verbs nor does it attach to the periphrastic causative auxiliary *ha-ta*. In addition, the lexical passive differs from the periphrastic *ci-* and *toy-* passives in allowing dative arguments in active sentences to correspond to subjects of adversity passives (K. Shin 1982, Y. Kim 1990a), as well as in allowing accusative case marking on affected part NP's (Y. Kim 1990a, K. Hong 1991b:231). Semantically, K. Hong (1991b:211) argues that the lexical passive differs from the periphrastic *ci-* passive in characterizing its subject as more responsible for the action of the verb, following K. Lee (1987) and Klaiman (1988). These syntactic and semantic differences make it inappropriate to base any arguments about the periphrastic passives of causatives on behavior observed with lexical passives.

5.4.1.1.5 Other Related Constructions In addition to the three standard types of passive, Korean has several passive-like constructions which involve auxiliary verbs in complexes with verbal nouns, where the auxiliary verb provides a semantic contribution in addition to selecting a subject which corresponds to an object in an active sentence. These auxiliaries include *tang ha-ta* 'suffer' for passive of an unfortunate event and *pat-ta* 'receive' for passive of a fortunate event (Chang-In Lee 1987).

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mek-i-ta 'cause to eat' and *mek-hi-ta* 'be eaten'. Also, there are verbs which for many speakers only have a lexical passive sense and no lexical causative sense, such as *nel-li-ta* 'be spread'.

An example of a fortunate active sentence and its passive with *pat-ta* 'receive' is given in (519), while an example of an unfortunate active sentence and its passive with *tang ha-ta* 'suffer' is given in (520).

(519) a. Imkum-nim-i uysa-lul chingchan ha-si-ess-ta
king-Hon-Nom doctor-Acc praise do-Hon-Pst-Dec
'The king praised the doctor.'

b. Uysa-ka chingchan **pat**-ess-ta
doctor-Nom praise receive-Pst-Dec
'The doctor was praised.'

(520) a. Kangto-ka Swuni-eykeyse ton-ul kangthal hay-ss-ta
robber-Nom Swuni-from money-Acc take.away do-Pst-Dec
'A robber took money away from Swuni.'

b. Swuni-ka kangto-eykey ton-ul kangthal **tang.ha**-yss-ta
Swuni-Nom robber-by money-Acc take.away suffer-Pst-Dec
'Swuni had her money taken away by a robber.'

O'Grady (1991:50) cites H. Choi (1950), H. Lee (1966), S. Hwang (1975), K. Shin (1982), K. Park (1986), and C. Youn (1986) as representing the generally accepted view that constructions with auxiliary verbs other than *ci-ta* or *toy-ta* are not true passives. O'Grady continues in this tradition, making the distinction between passives, which involve demotion of the actor, and these passive-like verbs, which have lexical meanings lending a passive-like interpretation to their sentences.

All of the preceding authors group together the lexical *-hi* passive with the auxiliary *ci-* and *toy-* passives as true passives; however, K. Hong (1991b:65–66) argues that the lexical *-hi* passive shares distinctive properties with the auxiliary *tang.ha-* passive. Specifically, Hong writes that *tang.ha-* passives, like *-hi* passives, may have subjects corresponding to obliques in active sentences in addition to active objects, citing (520), in which the oblique *Swuni-eykeyse* 'Swuni-from' in the active sentence corresponds to the passive subject. In Hong's second shared characteristic of *tang.ha* passives and *-hi* passives, the passive subject has control over or responsibility for the situation, instead of the passive agent.

Because constructions with these auxiliaries have not been considered passive, they have not formed part of the discussion on the status of the causative, and I will not make use of them in my argumentation on this subject. However, I believe that a complete account of passive in Korean could benefit greatly from studying these verbs in relation to the *toy-* passive, since certain active sentences have no acceptable *toy-* passive, while having an acceptable *pat-* 'receive' passive, and the opposite situation also obtains. Chang-In Lee (1987) argues that the *tang.ha-* 'suffer' passive is more productive than the *toy-* passive, citing, among other examples, the impossibility of passivizing the verbal noun *tonan* 'rub' with *toy-*, while the passive with *tang.ha-* 'suffer' is acceptable. A full account of passive would include the semantic restrictions imposed by *toy-*, *pat-*, and *tang.ha-* on their verbal noun complements, and thus have the ability to explain the unnaturalness of many passive sentences. This kind of full account would make it possible to examine interactions of this kind of passive and causative sentences.

5.4.1.1.6 Conclusion: Passive Types The *ci-* passive is productive for all ordinary verbs and the *toy-* passive is productive for most verbs involving *ha-ta*, with an exception for verbal nouns denoting unfortunate events like *salin* 'murder'. There are other productive passive-like auxiliaries, but they involve semantic interaction between the main verb and auxiliary, and show a less grammatically constrained correspondence to the active counterparts. The lexical passive also shows this lesser degree of restrictiveness on subject selection, as well as having additional case marking properties. In order to limit ourselves to more syntactic (not semantic) characteristics, and to draw a closer comparison, I will limit the discussion of passives of causatives to facts drawn from *ci-* passives and *toy-* passives.

The accepted practice in the literature has been to treat *toy-ta* when combining with causatives as merely an allomorph corresponding to both the causative auxiliary *ha-ta* and the passive auxiliary *ci-ta* (Gerdts 1986, Y. Choi 1988, O'Grady 1991:192). The *ci-ta* passive is theoretically applicable to any verb, but speakers dislike sentences where *ci-ta* applies to *ha-ta* instead of having *toy-ta* substitute for *ha-ta*. Under this assumption of allomorphy or equivalence, it is appropriate to make predictions for the *toy-ta* passive based on the *ci-ta* passive, and to count *toy-ta* with a verbal complement ending in *-key* as a passive of *ha-ta* with a verbal complement ending in *V-key*.

In my analysis of the passives of Korean, *toy-ta* is not an allomorph of the *ci-* passive applied to the causative auxiliary *ha-ta*, but both *toy-ta* and the *-e* passivizing suffix (subcategorized for by *ci-ta*) select as the passive subject the least oblique member of the COMPS list of the predicate they subcategorize for. Also, neither the *toy-* passive nor the *ci-* passive involves semantic restrictions on the passivized complement. These shared characteristics of subject selection and semantic transparency permit me to follow Gerdts, Choi, and O'Grady in applying arguments based on *ci-* passives to problems concerning *toy-* passives.

5.4.1.2 The Passive Problem

With a clear understanding of the types of passive in Korean, we can now begin to examine more closely how passive applied to periphrastic causatives is used to argue that periphrastic causatives must be biclausal (E. Cho 1987, 1988:185–189). The argument rests on the assumption that passive should apply to all accusative objects,[20] while the periphrastic causative only permits its accusative causee but not its accusative lower theme to be a passive subject. I repeat below the examples

[20] I am abstracting away from the Relational Grammar context of Cho's argument. Cho's actual position is that passive should apply to the nominal bearing the final 2-relation if there is no nominal bearing a final 2-chômeur relation under the same clause node. The restriction is intended to rule out passive sentences with accusative objects such as (i).

(i)	*Ai-tul-i	yenge-lul	kaluchi-e	ci-ess-ta
	child-Plur-Nom	English-Acc	taught-PasCmp	PasAux-Pst-Dec
	'The children were taught English.'			

Cho's position means that his arguments about the lower accusative object specifically apply to periphrastic causatives with dative causees, since an accusative causee would have undergone $3 \rightarrow 2$ Advancement, making the lower accusative argument into a 2-chômeur.

In my discussion of the argument against a monoclausal causative based on passive, I am attempting to give the essence of the argument outside of any particular theoretical framework.

illustrating this fact in the beginning of the passive section. The causee can be the passive subject, as seen in (521a), but the lower theme cannot, as seen in (521b).

(521) a. Emeni-ka atul-eyuyhayse casin-uy cip-ey tolaka-key
mother-Nom son-by self-Gen house-to return-Adv
toy-ess-ta
PasCausAux-Pst-Dec
'Mother was made by her son to return to her own house.'

b. *Os-i emeni-eyuyhayse atul-eykey ip-key
clothes-Nom mother-by son-Dat puton-Adv
toy-ess-ta
PasCausAux-Pst-Dec
'Clothes were made to be put on the son by the mother.'

In the sections below, I will cover the basis for assumptions about which objects should correspond to passive subjects, about biclausality and passive, and the analysis of passives with two nominative arguments. These facts, discussion, and analysis will provide the background for presenting my analysis of passive of causative, and how it is compatible with my monoclausal analysis of the periphrastic causative.

5.4.1.2.1 Multiple Object Verbs The reason for the contention that multiple objects should each be eligible to be passive subjects lies in a particular class of verbs, namely those which permit more than one accusative object.[21] The maximal definition of this class of verbs involves the lexical items *cwu-ta* 'give', *kaluchi-ta* 'teach',

[21] I will restrict the discussion to accusative objects only, as the only examples where datives in active sentences appear to be subjects of passive sentences are in special adversity circumstances, as in the example from K. Shin (1982) below.

(i) a. John-i Mary-eykeyse ice-cream-ul ppays-ess-ta
John-Nom Mary-from(Dat) ice-cream-Acc grab.away-Pst-Dec
'John grabbed ice cream away from Mary.'

b. Mary-ka John-eykey ice-cream-ul ppays-ki-ess-ta
Mary-Nom John-by(Dat) ice-cream-Acc grab.away-Pass-Pst-Dec
'Mary was grabbed away ice cream by John.'

and *seltuk.ha-ta* 'persuade'; lexical causatives; verbal compounds formed with the benefactive auxiliaries *cwu-ta* 'give' and *tuli-ta* 'give (to an honored recipient)'; verbs of the *sit-* 'load' type; and verbs of the *tep-* 'cover' type (K. Hong 1991b:165–167, 199–200). However, the extent of this class varies from speaker to speaker, and my data collection supports the statements of O'Grady (1991:53) and Y. Kang (1986:72 fn.22) that some speakers permit very few, if any, verbs to have two accusative objects. (522) gives example sentences with the main verb *cwu-ta*, first with the dative-accusative case marking pattern on its two objects, and second with the double accusative case marking pattern.

(522) a. Swuni-ka Minswu-**eykey** chayk-ul cwu-ess-ta
Swuni-nom Minswu-Dat book-Acc give-Pst-Dec
'Swuni gave Minswu a book.'

b. Swuni-ka Minswu-**lul** chayk-ul cwu-ess-ta
Swuni-nom Minswu-Acc book-Acc give-Pst-Dec
'Swuni gave Minswu a book.'

(523) gives a parallel lexical causative example, with a dative causee in the first sentence, and an accusative causee in the second sentence.

(523) a. John-i Mary-**eykey** os-ul ip-hi-ess-ta
John-Nom Mary-**Dat** clothes-Acc wear-Caus-Pst-Dec
'John made Mary put on the clothes.'

b. John-i Mary-**lul** os-ul ip-hi-ess-ta
John-Nom Mary-**Acc** clothes-Acc wear-Caus-Pst-Dec
'John made Mary put on the clothes.'

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c. *Ice-cream-i Mary-eykeyse John-eykey ppays-ki-ess-ta
Ice-cream-Nom Mary-from(Dat) John-by(Dat) grab.away-Pass-Pst-Dec
'The ice cream was grabbed away from Mary by John.'

Furthermore, these are only possible with lexical passives and the passive-like auxiliaries such as *tang.ha-* 'suffer' (Y. Kim 1990a, K. Hong 1991b), while our discussion of passive of causative is restricted to the semantically transparent *ci-* and *toy-* passives.

(524) gives an example with the auxiliary *cwu-ta*, where the recipient of the favor of reading can either be marked dative or accusative.

(524) a. Swuni-ka Minswu-**eykey** chayk-ul ilk-e cwu-ess-ta
Swuni-Nom Minswu-Dat book-Acc read-Cmp give-Pst-Dec
'Swuni read a book for Minswu.'

b. Swuni-ka Minswu-**lul** chayk-ul ilk-e cwu-ess-ta
Swuni-Nom Minswu-Acc book-Acc read-Cmp give-Pst-Dec
'Swuni read a book for Minswu.'

These double accusative verbs allow the theme to be the passive subject. In these passive sentences, the dative argument of the active sentence corresponds to a dative argument in the passive sentence. (525) illustrates this kind of passive sentence, with the dative marking on the goal in boldface. These passive sentences are completely parallel to passives of ditransitive verbs which do not permit double accusative marking in the active.

(525) Os-i Mary-**eykey** ip-hi-e ci-ess-ta
Clothes-Nom Mary-Dat wear-Caus-Cmp PasAux-Pst-Dec
'The clothes were made to be worn by Mary.'

Double accusative verbs do not permit passives with either the theme or goal expressed as an accusative, as seen in the examples below.

(526) a. *Os-i Mary-**lul** ip-hi-e ci-ess-ta
Clothes-Nom Mary-Acc wear-Caus-Cmp PasAux-Pst-Dec
'The clothes were made to be worn by Mary.'

b. *Mary-ka os-**ul** ip-hi-e ci-ess-ta
Mary-Nom clothes-Acc wear-Caus-Cmp PasAux-Pst-Dec
'Mary was made to put on the clothes.'

The critical examples for arguments about passivization and clausality involve passive sentences of a double accusative verb, with both theme and goal bearing nominative case. (527) provides an example.

(527) Mary-**ka** os-**i** ip-hi-e ci-ess-ta
Mary-Nom clothes-Nom wear-Caus-Cmp PasAux-Pst-Dec
'Mary was made to put on the clothes.'

In addition to forming the basis of the passive argument on clausality, these examples have been controversial to analyze. The controversy arises over determining which NP is the subject, and the status of the other nominative NP. If these sentences involve the goal as subject and the theme as a nominative object, then this presents a problem for the periphrastic causative in that it does not also permit a corresponding nominative-object passive, as seen below.[22]

(528) *Atul-**i** os-**i** ip-key toy-ess-ta
son-Nom clothes-Nom put on-Adv PasCausAux-Pst-Dec
'The son was made to put on the clothes.'

The contrast between the lexical and periphrastic causatives with regard to passive could lead one to relate passives of periphrastic causatives to passives of ordinary biclausal sentences, as in E. Cho (1987, 1988).

5.4.1.2.2 Biclausal Sentences under Passive In biclausal sentences, passive of the higher clause cannot select a subject from the (active sentence's) lower clause. E. Cho (1987) illustrates this point with the sentences in (529). The lower theme of the active sentence in (529a), *totwuk-ul* 'thief-Acc', cannot correspond to the subject in the passive sentence in (529b).

(529) a. Nay-ka [Kim-swunkyeng-i **totwuk-ul** cap-ass-ta-ko]
I-Nom Kim-policeman-Nom thief-Acc catch-Pst-Dec-Cmp
mit-ess-ta
believe-Pst-Dec
'I believed that Officer Kim caught the thief.'

[22]I present here the standard facts assumed in the literature. Some of my consultants agree with the standard contrast between (527) and (528), while some others find both (527) and (528) '?' or '??'.

b. ***Totwuk-i** nay-ey.uy.hayse [Kim-swunkyeng-i cap-ass-ta-ko]
thief-Nom I-by Kim-policeman-Nom catch-Pst-Dec-Cmp
mit-e ci-ess-ta
believe-Cmp PasAux-Pst-Dec
'I believed that Officer Kim caught the thief.'

The only way an argument of the lower clause can correspond to the passive subject is if it is also an argument of the higher clause, as in Cho's Raising-to-Object examples given in (530). The "raised" object *Inho-lul* 'Inho-Acc' in (530a) can correspond to the passive subject in (530b).

(530) a. Nay-ka **Inho-lul** [chencay-la-ko] mit-ess-ta
I-Nom Inho-Acc genius-be-Cmp believe-Pst-Dec
'I believed that Inho was a genius.'

b. Na-ey.uy.hayse **Inho-ka** [chencay-la-ko] mit-e ci-ess-ta
I-by Inho-Nom genius-be-Cmp believe-Cmp PasAux-Pst-Dec
'Inho was believed by me to be a genius.'

Cho relates these facts concerning passive of biclausal sentences to the facts that the lower theme in causative cannot be a passive subject, while the causee can be a passive subject, and concludes that the periphrastic causative is biclausal.

At this point, we have seen all the basic facts entering into the discussion of passive of causative, but the analysis of these facts is complicated and subtle. We need to examine closely the kind of passive sentence alleged to be necessary for the periphrastic causative to show evidence of monoclausality; the analysis of these sentences will shed some light on the periphrastic causative facts.

5.4.1.2.3 Returning to Issue of Double Passive Verbs which have multiple accusative objects in active sentences permit passive sentences with two nominative-marked arguments corresponding to the active accusative objects, such as (527), repeated below.

(531) Mary-**ka** os-**i** ip-hi-e ci-ess-ta
Mary-Nom clothes-Nom wear-Caus-Cmp PasAux-Pst-Dec
'Mary was made to put on the clothes.'

It is an important matter to decide whether sentences like (531) represent a second possible passive for the verb *ip-hi-ta*, shown in the active sentences in (532), in addition to the standard passive given in (533), where the theme is the passive subject.

(532) a. John-i Mary-**eykey** os-ul ip-hi-ess-ta
John-Nom Mary-**Dat** clothes-Acc wear-Caus-Pst-Dec
'John made Mary put on the clothes.'

b. John-i Mary-**lul** os-ul ip-hi-ess-ta
John-Nom Mary-**Acc** clothes-Acc wear-Caus-Pst-Dec
'John made Mary put on the clothes.'

(533) Os-i Mary-**eykey** ip-hi-e ci-ess-ta
Clothes-Nom Mary-Dat wear-Caus-Cmp PasAux-Pst-Dec
'The clothes were made to be worn by Mary.'

If the double nominative sentences, as seen in (531), are a second possibility of passive, then any sentence with two accusative objects would be expected to have two possible passives. This means that the periphrastic causative would need to have both possible passives in order to be considered an ordinary monoclausal predicate with two objects. If the double nominative sentences do not represent a second form of passive, giving the possibility of either object becoming passive subject, then the contrast between lexical and periphrastic causatives in these double nominative sentences (compare (528) with (527), repeated as (531)) is interesting, but not necessarily as a reflection of the objecthood of the arguments in the active sentences. Any possible syntactic or semantic difference between the lexical and periphrastic causatives could be responsible for the difference. Thus, we need to determine the status of the double nominative passive sentences in order to judge the weight of the passive argument against a monoclausal analysis of the periphrastic causative.

The dual passive analysis, supported by Gerdts & Youn (1988), K. Hong (1991b:236),[23] Y. Kim (1990a:225), Y. Kang (1986:89), and Maling & S. Kim (1992:53), sees the passive sentences with two nominative arguments as having a nominative subject and a nominative object, while the single passive analysis, supported by J.-Y. Yoon (1989:388) and O'Grady (1991:135), sees the sentences with double nominatives as having an ordinary theme subject preceded by a focussed nominative, which only happens to be coreferent with the unexpressed goal. Thus, under the single passive analysis, both kinds of passive examples involve the theme argument as passive subject. The difference is in whether the goal argument appears as a dative object or a nominative focus.

Since Korean in the non-causative realm has both sentences with an initial nominative Focus NP preceding a nominative subject and sentences with a nominative subject preceding a nominative object, I will briefly describe these two constructions in order to provide a background for examining the passive sentences. Both kinds of sentences are discussed extensively in C. Youn (1990).

5.4.1.2.4 Focus Nominative Korean Focus nominative NP's occur in the sentence-initial position, and precede the nominative subject, as in the examples below with boldfaced Focus NP's.

(534) a. **Sue-ka** cha-ka cal talli-n-ta
Sue-nom car-Nom well run-Pres-Dec
'It's Sue whose car runs well.'

b. **Mary-ka** emeni-ka yeyppu-si-ta
Mary-Nom mother-nom pretty-Hon-Dec
'It's Mary whose mother is pretty.'

In Focus double nominative sentences, the second nominative NP is the actual subject, as demonstrated by Subject Honorification. The examples below are taken

[23]K. Hong (1991b) supports the dual passive analysis, but she also argues that the occurrence of two nominative phrases in a clause by any theoretical means creates the multiple nominative construction (Hong 1991b:43, 215), i.e., what I call the Focus construction, in which the first NP must be able to be characterized by the remaining clause.

from H. Lee and M. Kim (1988). Italics indicate an argument with social status appropriate for honorification, as well as the honorific verbal suffix *-(u)si*.

(535) a. **Sensayngnim-i* sonca-ka yeyppu-*si*-ta
Teacher-Nom grandchild-Nom pretty-Hon-Dec
'The teacher's grandchild is pretty.'

b. Sue-ka *emeni-ka* yeyppu-*si*-ta
Sue-Nom mother-Nom pretty-Hon-Dec
'Sue's mother is pretty.'

If we look at the honorific nominative *-kkeyse* marking as a subjecthood test, we see that the second NP continues to be identified as the subject. The examples below are taken from C. Youn (1990:121–2).[24]

(536) a. **Kim-sensayng-nim*-kkeyse ttal-i yeyppu-*si*-ta
Kim-teacher-Hon-HNom daughter-Nom pretty-Hon-Dec
'It's Teacher Kim whose daughter is pretty.

b. Swuni-ka *emeni*-kkeyse phyenchanh-*usi*-ta
Swuni-Nom mother-HNom be.sick-Hon-Dec
'It's Swuni whose mother is sick.

Thus, double nominative passive sentences could plausibly resemble this type of Focus double nominative sentence. We now examine background for the second possible analysis of the double nominative passive sentences.

[24] In an example like (i), I would analyze the nominative body part as an adjunct modifying the person, with the body part's case identified with the case of the NP denoting the person.

(i) Emeni-kkeyse mom-i pwulphyen.ha-si-ta
mother-HNom body-Nom be.sick-Hon-Dec
'Mother is sick.'

Thus, this example would not be an instance of the same Focus construction illustrated in this section where two distinct individuals are involved.

5.4.1.2.5 Nominative Objects Korean has nominative objects, in addition to nominative subjects, in several kinds of active sentences, such as with verbs of possession and psych verbs. The subjecthood tests make clear that in these sentences, the first nominative NP is the subject, unlike in the Focus NP sentences.

In nominative object sentences, the subject honorification suffix *-(u)si* can honor the first NP, but not the second (H. Lee and M. Kim 1988, C. Youn 1990:213–4). The examples below are taken from Youn (1990). Again, italics indicate arguments with appropriate social status for honorification, as well as the honorific suffix *-(u)si*.

(537) a. *Chelswu-ka *yenge-sensayngnim-i* philyo.ha-*si*-ta
Chelswu-Nom English-teacher-Nom need-SHon-Dec
'Chelswu needs an English teacher.'

b. *Yenge-sensayngnim-i* Chelswu-ka philyo.ha-*si*-ta
English-teacher-Nom Chelswu-Nom need-SHon-Dec
'The English teacher needs Chelswu.'

Similarly, the honorific nominative marker *-kkeyse* is possible only on the first of these two NP's, and not on the second. The examples below are taken from C. Youn (1990:217–218).

(538) a. Sensayngnim-**kkeyse** ton-i philyo.ha-si-ta
teacher-HNom money-Nom need-SHon-Dec
'The teacher needs money.'

b. *Swuni-ka yenge-sensayngnim-**kkeyse** philyo.ha-ta
Swuni-Nom English-teacher-HNom need-SHon-Dec
'Swuni needs an English teacher.'

Proponents of the nominative object analysis for the double nominative passives may argue that the reason for nominative case on this object is that passive is not compatible with accusative case, and thus a default nominative case is assigned (K. Hong 1991b:237). The claim about the impossibility of accusative case may be supported with examples of the whole-part construction in the passive. K. Hong (1991b:240) argues this point with the following examples. A whole-part sentence such as (539) has accusative case on both the whole person, *Swuni-lul* 'Swuni-Acc', and the body part, *son-ul* 'hand-Acc'.

(539) Minswu-ka Swuni-lul son-ul cap-ass-ta
Minswu-Nom Swuni-Acc hand-Acc catch-Pst-Dec
'Minswu caught Swuni by the hand.'

In the passive sentence corresponding to (539), the body part cannot be marked accusative, as seen in (540a), and must be marked nominative, as in (540b).[25]

(540) a. *Swuni-ka Minswu-ey.uyhayse son-**ul** cap-a ci-ess-ta
Swuni-Nom Minswu-by hand-**Acc** catch-Cmp PasAux-Pst-Dec
'Swuni was caught by the hand by Minswu.'

b. Swuni-ka Minswu-ey.uyhayse son-**i** cap-a ci-ess-ta
Swuni-Nom Minswu-by hand-**Nom** catch-Cmp PasAux-Pst-Dec
'Swuni was caught by the hand by Minswu.'

My analysis of whole-part sentences is that they involve optional identification of the case of the part NP with the case of the whole NP. Only one of these two NP's is an argument, with grammatical case assigned to it lexically by the verb, while the other is an adjunct, with case structure-shared with the argument to which it is

[25]The lexical passive appears to allow either accusative or nominative marking on the part NP, but this is due to the additional adversity passive reading (Y. Kim 1990a:287, Maling and S. Kim 1992:49–51, K. Hong 1991b:231, C. Lee 1973b:150). The accusative part is possible with an animate affected person who can suffer adversity, such as in (i), but when the affected whole is inert, such as the book in (ii), the accusative marking on the part NP is impossible.

(i) Swuni-ka Minswu-eykey son-**ul** cap-hi-ess-ta
Swuni-Nom Minswu-Dat hand-**Acc** catch-Pst-Dec
'Swuni was caught by the hand by Minswu.'

(ii) *Chayk-i Minswu-eykey phyoci-**lul** ccic-ki-ess-ta
Book-Nom Minswu-Dat title.page-**Nom** tear-Pass-Pst-Dec
'The title page of the book was torn by Minswu.'

semantically closely related. K. Hong (1991b:241 fn.32) chooses the part NP, rather than the whole NP, as the argument, but nothing in the line of reasoning in this section rests upon the assumption that either the part NP or the whole NP is the argument.[26] Under the interpretation that the part NP is the subject, the reason that accusative case is unavailable for the part NP's in these sentences is that the part NP, as subject, bears nominative case, while the whole NP has its CASE value identified with that of the part NP, and thus it also bears nominative case. Under the interpretation that the whole NP is the subject, parallel reasoning applies. The whole NP bears nominative case as the subject, and the part NP bears a CASE value identified with that of the whole NP, and thus bears nominative case as well. In either interpretation, these sentences are intransitive, and have no appropriate object to bear accusative case. Thus I do not believe that the lack of accusative case in whole-part sentences in the passive gives any support at all to the nominative object hypothesis for the double nominative passives.

However, the nominative object hypothesis does remain a plausible analysis for double nominative passives, and we will need to continue our investigation of the properties of these sentences. Having reviewed both of the possible types of sentences we are comparing the double nominative passives to, namely, Focus double nominative and nominative object sentences, we can return to examining the particular properties of double nominative passives.

5.4.1.2.6 Subject Honorification and Double Nominative Passives To decide between the Focus NP analysis and the nominative object analysis for double nominative passives, we need to determine whether the first NP or the second NP is the subject. The first subjecthood test we will apply to this type of sentence is subject honorification. If the Focus NP analysis is correct, we would expect that the first NP, being a Focus and not a subject, would not license subject honorification on the

[26]If we follow Hong and choose the part NP as the argument, we need our analysis of the honorific subject nominative *-kkeyse* to permit it to occur on a non-subject adjunct, which precedes the subject, to account for examples like (i) in Footnote 24. This is indeed a possible variant of my current case analysis. The other possibility is to treat the whole NP as the argument, and the part NP as the adjunct, allowing the interpretation of the *-kkeyse*-marked NP in (i) as the subject.

verb; while the second NP, as the subject, should license the subject honorification suffix on the verb. If the nominative object analysis is the correct analysis, then the first NP would be the subject and license subject honorification, while the second NP would be an object and thus not license subject honorification.

The data for subject honorification in double nominative passives is not completely clear. Certain examples are marginal or highly questionable, while others are more acceptable. (541) gives two examples from the literature of subject honorification corresponding to the first NP, which were judged marginal to bad. As in the previous sections, arguments of social status appropriate for honorification are italicized, as is the verbal subject honorification suffix *-(u)si*.

(541) a. ?**Sensayngnim*-i yenphil-i cwu-e ci-*si*-ess-ta
teacher-Nom pencil-Nom give-Cmp PasAux-Hon-Pst-Dec
'The teacher was given the pencil.'[O'Grady 1991:136]

b. ??*Sensayngnim-i* (Minswu-ey.uy.hayse) chayk-i cwu-e
teacher-Nom Minswu-by book-Nom give-Cmp
ci-*si*-ess-ta
PasAux-Hon-Pst-Dec
'The teacher was given the book.'[Hong 1991b:173]

The ungrammaticality of examples like (541) would support the Focus NP analysis. However, other examples of subject honorification corresponding to the first NP are more acceptable, as seen in (542). I list here the judgments these sentences had in their sources; some of my consultants accept (542b), while others find it unacceptable with or without the subject honorification.

(542) a. *Sensayngnim-i* (Minswu-ey.uy.hayse) os-i ip-hi-e
Teacher-Nom Minswu-by clothes-Nom wear-Caus-Cmp
ci-*si*-ess-ta
PasAux-Hon-Pst-Dec
'The teacher was dressed (by Minswu).'[K. Hong (1991b:171)]

b. *Kyocang-sensayngnim-i* cengpwu-ey.uy.hayse kwukmin-hwuncang-i
principal-teacher-Nom government-by award.of.recognition-Nom
swuye toy-*si*-ess-ta
award become-Hon-Pst-Dec
'The principal was given an award by the government.'[Kang 1986:86]

There have been different opinions on the reason for the contrast in acceptability between examples like (541) and (542). K. Hong (1991b:171) attributes the contrast between her examples (541b) and (542a) to a general tendency for *ci* passive sentences to prefer inert subjects. One consultant reports that passives of *cwu-ta* 'give', as in (541), generally sound unnatural, because the concept of being given something would most likely be expressed by an active verb such as *pat-ta* 'receive'.[27] For this reason, passives of lexical causatives, as in (542a), which are less likely to have single verb paraphrases, may be generally more acceptable, regardless of honorification.

O'Grady (1991:136) concludes that the sometimes unacceptable subject honorification is typical of other Focus sentences, where subject honorification facts do not fall into a neat pattern, writing that "honorific agreement here exhibits the poorly understood constraints typical of the focus construction." K. Hong (1991b:173) argues that subjecthood is crucial to the possibility of honorification in (541), since when the initial recipient NP is dative instead of nominative, the subject honorification is impossible, as seen in (543).

[27]Another consultant finds passive of *cwu-ta* 'give' perfectly natural, as in the phrase in (i).

(i) na-eykey cwu-e ci-n immwu
me-Dat give-Cmp PasAux-PstMod duty
'a duty which was given to me'

However, the acceptability of the passive of *cwu-ta* 'give' decreases for this consultant if this passive occurs in a relative clause modifying the recipient, rather than the theme, as in (ii).

(ii) ?immwu-ka cwu-e ci-n sensayngnim
duty-Nom give-Cmp PasAux-PstMod teacher
'a teacher who was given this duty'

(543) **Sensayngnim-kkey* (Minswu-ey.uy.hayse) chayk-i cwu-e
teacher-HDat Minswu-by book-Nom give-Cmp
ci-*si*-ess-ta
PasAux-Hon-Pst-Dec
'The teacher was given the book.'/'It was the teacher who the book was given to.'[Hong 1991b:173]

However, since the contrast in judgments Hong gives is between '??' and '*', the difference does not seem fundamentally clear, as might be expected from a contrast between a non-subject and a subject with an honorification suffix on the verb. The difference here could easily result from the difference in prominence from scrambling to sentence-initial position, as in (543), or being a Focus NP. The Focus NP may have more semantic prominence as a "prospective possessor", in O'Grady's term, than the scrambled dative, and thus have a closer connection to the theme subject. This connection could allow metonymic subject honorification, as described by K. Hong (1991b:12), where "something related to a person, e.g., body parts, can represent the person", and thus license subject honorification.

Contrasts between the dative recipient and the nominative recipient in passives may also be expected to be sensitive to factors of semantic emphasis, rather than purely syntactic argument structure, because of the possibility of case stacking of dative and nominative together on the recipient in the passive, as in the example below from Jong-Yurl Yoon (1989).

(544) Mary-hanthey-ka ku sang-i cwu-e ci-ess-ta
Mary-Dat-Nom that prize-Nom give-Cmp PasAux-Pst-Dec
'The prize was given to Mary.'

The dative-nominative case stacking would be possible under either analysis of passive, since dative-nominative subjects are possible, and dative-nominative Focus NP's should be possible where semantic constraints are met. The importance of (544) comes in showing that dative case may occur on a subject or an object, so that the contrast in behavior between dative and nominative NP's which Hong argues for is not immediately diagnostic of a difference between subject and object NP's.

My impression of the subject honorification facts for the first NP in double nominative passives is that subject honorification does appear to be possible; however, there is a distinct preference for the sentences without the honorification morpheme. This can be seen in my examples in (545).

(545) a. ? *Wangca*-ka os-i ip-hi-e ci-ess-ta
prince-Nom clothes-Nom wear-Caus-Cmp PasAux-Pst-Dec
'The prince was made to wear the clothes.'

b. ?? *Wangca*-ka os-i ip-hi-e ci-*si*-ess-ta
prince-Nom clothes-Nom wear-Caus-Cmp PasAux-SHon-Pst-Dec
'The prince was made to wear the clothes.'

The dispreference for the subject honorification morpheme in these sentences could result from a lexical restriction on *ci-ta* bearing subject honorification, which would remove any possibility of subject honorification aiding us in determining the subject of double nominative passives. Instead of that path, I will follow O'Grady (1991) in taking the unclear subject honorification facts as insufficient to call the first NP the subject, though I acknowledge that these facts slightly favor that hypothesis.

All of the examples discussed thus far involve honorification corresponding to the first of the two NP's. If the first of the two NP's is a Focus NP, then the second NP should be the subject and thus license subject honorification. If the second NP is a nominative object, then it should not be able to license subject honorification. The only discussion I am aware of in the literature of the honorification possibilities of the second NP is in Y. Kang (1986:88), who presents (546) as ungrammatical if a subject honorification morpheme attempts to honor the second NP. He thus uses this example to argue in favor of the nominative object analysis.

(546) Cek.kwun-i a.kwun-ey.uyhayse hyucen-uy tay.s.ka-lo wuli-uy
enemy-Nom our.army-by ceasefire-Gen reward-as us-Gen
wangca-nim-i polmo-lo cwu-e ci-(**si*)-ess-ta
prince-Hon-Nom hostage-as give-Cmp PasAux-(Hon)-Pst-Dec
'As the reward for the ceasefire, the enemy was given our prince as a hostage by our army .'

My consultants did not accept Kang's basic sentence, although some did find the sentence worse with the honorification morpheme added. My example in (547) involves an animate theme in a more potentially honorable situation than in (546) (a bride rather than a hostage), but again few speakers accepted it. The speakers who did accept the basic sentence in (547a) found that the addition of subject honorification in (547b) decreased its acceptability.

(547) a. ??Manh.un himtun il-ul wanswu.ha-n taum-ey, yengwung-i sinpwu-lo
many arduous task-Acc complete-Pst after-Dat hero-Nom bride-as
kongcwu-ka cwu-e ci-ess-ta
princess-Nom give-Cmp PasAux-Pst-Dec
'After completing many arduous tasks, the hero was given the princess as his bride.'

b. *Manh-un himtun il-ul wanswu.ha-n taum-ey, yengwung-i
many arduous task-Acc complete-Pst after-Dat hero-Nom
sinpwu-lo *kongcwu-ka* cwu-e ci-*si*-ess-ta
bride-as princess-Nom give-Cmp PasAux-SHon-Pst-Dec
'After completing many arduous tasks, the hero was given the princess as his bride.'

I found that more speakers accepted the passive of a lexical causative given in (548a). The addition of the subject honorification morpheme made the sentence ungrammatical, as seen in (548b).

(548) a. ?Ai-ka *imkum-nim*-uy os-i ip-hi-e ci-ess-ta
child-Nom king-Hon-Gen clothes-Nom wear-Caus-Cmp PasAux-Pst-Dec
'The child was made to wear the king's clothes.'

b. *Ai-ka *imkum-nim-uy* os-i ip-hi-e
child-Nom king-Hon-Gen clothes-Nom wear-Caus-Cmp
ci-*si*-ess-ta
PasAux-Hon-Pst-Dec
'The child was made to wear the king's clothes.'

(548) is not conclusive proof of the non-subjecthood of the second NP, however, as it relies on the metonymic identification of the king with his clothes, rather than directly honoring an individual. The semantic constraints on constructing acceptable double nominative passive sentences with honorable themes make it difficult to use honorification as a subjecthood test. My attempts to construct definitive examples did not succeed.

At this stage in our knowledge, Subject Honorification slightly favors the subjecthood of the first NP, though it does not clearly support one analysis over the other. The possibility of metonymic honorification where one argument might license the honorific suffix through its semantic connection with another argument complicates this subjecthood test, and negates the slight advantage the nominative object analysis might otherwise take from this data. Furthermore, the fact that all double nominative passives appear to decrease in acceptability with the addition of the subject honorification morpheme casts doubt on the true subjecthood of the first NP. I move now to the second of our subjecthood tests for double nominative sentences: the honorific *-kkeyse* nominative case marking.

5.4.1.2.7 *-kkeyse* and Double Nominative Passives The honorific nominative marker *-kkeyse* should be possible on only the true subject of the double nominative passives. If the Focus NP analysis is correct, then the second nominative NP will be able to be marked with *-kkeyse*, while *-kkeyse* marking will be ungrammatical on the first Focus NP. Under the nominative object analysis, we would expect *-kkeyse* marking on the first nominative NP, with no possibility of *-kkeyse* marking on the second NP because of its status as an object.

Unfortunately, the same difficulties obtaining basic data described in the subject honorification section apply to the *-kkeyse* test. In addition, there appears to be a slight favoring of the first NP for this subjecthood test as well as the previous one. Kang's (1986:86) example, (542b), is repeated below as (549a). The consultants who accept (549a) also accept (549b), where the first NP is marked with the honorific nominative marker *-kkeyse*.

(549) a. *Kyocang-sensayngnim*-**i** cengpwu-ey.uy.hayse kwukmin-hwuncang-i
principal-teacher-Nom government-by award.of.recognition-Nom
swuye toy-*si*-ess-ta
give become-Hon-Pst-Dec
'The principal was given an award by the government.'

b. *Kyocang-sensayngnim*-**kkeyse** cengpwu-ey.uy.hayse
principal-teacher-Nom government-by
kwukmin-hwuncang-i swuye toy-*si*-ess-ta
award.of.recognition-Nom give become-Hon-Pst-Dec
'The principal was given an award by the government.'

Another consultant reports that the acceptability of the following examples decreases from (550a) to (550d) in order. We can interpret this judgment as decreasing acceptability correlating with additional signifiers of subjecthood of the first NP.[28]

(550) a. ??Sensayngnim-**i** chayk-i cwu-e ci-ess-ta
teacher-Nom book-Nom give-Cmp PasAux-Pst-Dec
'The teacher was given a book.'

b.???Sensayngnim-**i** chayk-i cwu-e ci-*si*-ess-ta
teacher-Nom book-Nom give-Cmp PasAux-Hon-Pst-Dec
'The teacher was given a book.'

c. *Sensayngnim-**kkeyse** chayk-i cwu-e ci-*si*-ess-ta
teacher-Nom book-HNom give-Cmp PasAux-Hon-Pst-Dec
'The teacher was given a book.'

d. *Sensayngnim-**kkeyse** chayk-i cwu-e ci-ess-ta
teacher-Nom book-HNom give-Cmp PasAux-Pst-Dec
'The teacher was given a book.'

[28]Contrary to this position, one other consultant reports (550b) as sounding better than (550a).

If we look at a double nominative passive of a lexical causative instead of a 'give' verb, we see a generally similar pattern. Some of my consultants find all of the sentences in (551) grammatical, others find them all ungrammatical. The consultant cited above for decreasing acceptability with additional markers of subjecthood in the previous set of examples finds the non-honorific sentence (551a) not really acceptable, but better than any of the other examples of the set, with (551c), having both forms of subject honorific, the next closest in acceptability.

(551) a. ? *Wangca-nim*-i os-i ip-hi-e ci-ess-ta
prince-Hon-Nom clothes-Nom wear-Caus-Cmp PasAux-Pst-Dec
'The prince was made to wear the clothes.'

b. ?? *Wangca-nim*-i os-i ip-hi-e ci-*si*-ess-ta
prince-Hon-Nom clothes-Nom wear-Caus-Cmp PasAux-SHon-Pst-Dec
'The prince was made to wear the clothes.'

c. ?? *Wangca-nim*-**kkeyse** os-i ip-hi-e
prince-Hon-Nom clothes-Nom wear-Caus-Cmp
ci-*si*-ess-ta
PasAux-SHon-Pst-Dec
'The prince was made to wear the clothes.'

d. ?? *Wangca-nim*-**kkeyse** os-i ip-hi-e ci-ess-ta
prince-Hon-Nom clothes-Nom wear-Caus-Cmp PasAux-Pst-Dec
'The prince was made to wear the clothes.'

I conclude from this data that the *-kkeyse* honorific nominative subjecthood test closely resembles the subject honorification in the general unacceptability of the relevant sentences as well as the results. The first nominative NP can apparently cooccur with the honorific subject nominative marker *-kkeyse*, indicating subjecthood, but sentences with overt signifiers of subjecthood often diminish in acceptability.

Applying the *-kkeyse* honorific nominative subjecthood test to the second nominative NP is even more difficult than the other kinds of tests in this and the previous section. *-kkeyse* must attach to its actual honored referent, and cannot metonymically honor a person through objects or parts representing that person, in contrast with the verbal subject honorification suffix *-si*, which permits metonymic honorification in some instances. *os-kkeyse* 'clothes-SHon' is not a possible lexical item. Thus, examples with *-kkeyse* attached to nominative themes representing possessions of an honored person are all ungrammatical, as seen in (552c).

(552) a. ?Ai-ka *imkum-nim*-uy os-i ip-hi-e ci-ess-ta
child-Nom king-Hon-Gen clothes-Nom wear-Caus-Cmp PasAux-Pst-Dec
'The child was made to wear the king's clothes.'

b. *Ai-ka *imkum-nim-uy* os-i ip-hi-e
child-Nom king-Hon-Gen clothes-Nom wear-Caus-Cmp
ci-*si*-ess-ta
PasAux-Hon-Pst-Dec
'The child was made to wear the king's clothes.'

c. *Ai-ka *imkum-nim-uy* os-**kkeyse** ip-hi-e
child-Nom king-Hon-Gen clothes-Nom wear-Caus-Cmp
ci-(si)-ess-ta
PasAux-(Hon)-Pst-Dec
'The child was made to wear the king's clothes.'

My attempt at an animate honorable theme in (553a) was rejected as completely ungrammatical by most of my consultants. The two consultants who found it somewhat possible found (553b) slightly worse than (553a).

(553) a. ??Manh.un himtun il-ul wanswu.ha-n taum-ey, yengwung-i sinpwu-lo
many arduous task-Acc complete-Pst after-Dat hero-Nom bride-as
kongcwu-ka cwu-e ci-ess-ta
princess-Nom give-Cmp PasAux-Pst-Dec
'After completing many arduous tasks, the hero was given the princess as his bride.'

b. *Manh-un himtun il-ul wanswu.ha-n taum-ey, yengwung-i
many arduous task-Acc complete-Pst after-Dat hero-Nom
sinpwu-lo *kongcwu*-**kkeyse** cwu-e ci-(*si)-ess-ta*
bride-as princess-Nom give-Cmp PasAux-SHon-Pst-Dec
'After completing many arduous tasks, the hero was given the princess as his bride.'

Thus, testing the second nominative NP with *-kkeyse* marking does not yield clear, strong results. Most sentences are not completely acceptable in their base form, and they become worse with the addition of *-kkeyse*. My conclusion on the *-kkeyse* subjecthood test, in conjunction with the subject honorification *-si* test, is that the first nominative NP shows some slight signs of being the true subject, while the second nominative NP does not give us the same slight evidence. However, sentences often degrade in acceptability with the addition of subject honorification corresponding to the first NP, thus this is not a textbook case of meeting a subjecthood test. I now turn to testing the first NP for its topichood or argumenthood through ellipsis.

5.4.1.2.8 Ellipsis and Double Nominatives An additional kind of evidence we can bring to bear on the question of identifying which NP is the subject in double nominative passives is the acceptability of sentences in which one of the nominative arguments has been omitted (Young-mee Yu Cho, p.c.). We will take the sentence from (502b), repeated here as (554), as the complete double nominative passive to compare variants against.

(554) Mary-ka os-i ip-hi-e ci-ess-ta
Mary-Nom clothes-Nom wear-Caus-Cmp PasAux-Pst-Dec
'Mary was made to put on the clothes.'

If we omit the second nominative NP, the lower theme *os-i* 'clothes-Nom', as shown in (555a), the sentence is rather ungrammatical. However, omitting the first nominative NP, the causee *Mary-ka* 'Mary-Nom', results in a perfectly natural sentence, as shown in (555b).[29]

[29] Of course, (555b) has an alternate corresponding full sentence in which the causee is expressed as a dative argument, e.g. *Mary-eykey*, instead of the nominative argument *Mary-ka*. This means

(555) a. ??Mary-ka ip-hi-e ci-ess-ta
Mary-Nom wear-Caus-Cmp PasAux-Pst-Dec
'Mary was made to put on (the clothes).'

b. Os-i ip-hi-e ci-ess-ta
clothes-Nom wear-Caus-Cmp PasAux-Pst-Dec
'The clothes were made to be put on (by Mary).'

The fact that the second, theme NP appears to be obligatory while the first argument is not would follow more naturally from the Focus NP analysis than the nominative object analysis. A Focus NP would be more naturally omissible, due to the status of the Focus NP as not being a core argument. In addition, a Focus NP may be less acceptable occurring together with only a bare verb, due to the normal use of the Focus NP with an entire proposition. When a single NP occurs with only the verb, there is no longer the discourse need to highlight this single NP as a Focus. Under the nominative object analysis, there is no such plausible reason why the nominative object would be preferred over the nominative subject as the argument to retain in elliptical sentences.

With subject honorification and *-kkeyse* marking slightly favoring the first NP as subject, while ellipsis facts argue for treating this NP as a topic, I will treat this evidence as not completely sufficient for determining subjecthood, and move to consideration of the implications of adopting the Focus NP analysis of double nominative passives.

5.4.1.2.9 Focus and Periphrastic Causatives Deciding between the Focus NP analysis and the nominative object analysis for double nominative passives is important for determining the status of the observed contrast between passives of lexical and periphrastic causatives. If the nominative object analysis is correct, then there are two passives possible for sentences with two accusative objects. This means that the periphrastic causative would be deficient in not permitting its theme object to be

we cannot take this argument as decisive, though we can still make use of it in combination with other evidence.

the subject of passive, in addition to the causee. If the Focus NP analysis is correct, then there is only one passive sentence corresponding to each active sentence, but arguments other than the subject may appear in the nominative sentence-initially as Focus NP's.

Since Focus is related to semantic and discourse plausibility, the acceptability of Focus sentences can easily vary, depending on various non-syntactic factors. If the Focus NP analysis of double nominative passives of lexical causatives were correct, we might expect some differences between lexical and periphrastic causatives in semantic plausibility of Focus NP's, perhaps corresponding to the semantic differences between lexical and periphrastic causatives observed in time adverbs and directness of causation. Under these circumstances, it is possible that lexical causatives would permit a wider range of Focus NP passive sentences than periphrastic causatives, but we would expect a limited number of Focus NP passive sentences with periphrastic causatives. The contrast given in double nominative passives in the previous sections ((501) vs. (502)) and in the literature addressing this point (Gerdts 1986, 1990, E. Cho 1987, 1988, O'Grady 1991:193) implies that we never see Focus NP passives of periphrastic causatives. However, the following examples call this supposition into question; it appears that periphrastic causatives do permit limited Focus NP passive sentences.

Consider the passivization possibilities for the following active periphrastic causative sentence.

(556) Nay-ka khemphyute-lul catongcek-ulo ilum-ul kilok.ha-key hay-ss-ta
I-Nom computer-Acc automatic-Adv name-Acc record-Adv do-Pst-Dec
'I made the computer automatically record the names.'

The classic passive with the causee as subject and an accusative theme is good as expected, as seen below.

(557) Khemphyute-ka catongcek-ulo **ilum-ul** kilok.ha-key toy-ess-ta
computer-Nom automatic-Adv name-Acc record-Adv become-Pst-Dec
'The computer was made to automatically record the names.'

If we try to mark the lower theme with nominative, as in the nominative object hypothesis for double Nominative passives, the sentence is completely bad, as seen in (558).

(558) *Khemphyute-ka catongcek-ulo **ilum-i** kilok.ha-key toy-ess-ta
computer-Nom automatic-Adv name-Nom record-Adv become-Pst-Dec
'The computer was made to automatically record the names.'

However, if we choose the lower theme as Focus, with the causee remaining as subject, the sentence is fairly acceptable, as seen in (559).

(559) ?**Ilum-i** catongcek-ulo khemphyute-ka kilok.ha-key toy-ess-ta
name-Nom automatic-Adv computer-Nom record-Adv become-Pst-Dec
'The computer was made to automatically record the names.'

The crucial point here is that the Focus argument should be sentence-initial, preceding the subject, while a nominative object would occur after the subject. For lexical causatives, the theme is the ordinary, expected passive subject. The theme subject precedes a dative or accusative causee object, while a Focus NP coreferent with the causee precedes the theme subject. The two different word orders correspond to the status of the causee as an expressed object, or as coreferent with a Focus NP. In periphrastic causatives, the causee, not the theme, is the normal expected subject, so it precedes an accusative theme. In a Focus NP sentence, the theme must be coreferent with the Focus NP, and thus sentence-initial. Thus the word order for double nominative passives is predicted to be different for lexical and periphrastic causatives under the Focus NP analysis.

In addition to ordering the Focus NP before the subject, another way to produce an acceptable passive periphrastic causative sentence with a nominative theme is to omit any overt expression of the causee subject argument, as in (560). Omitting an argument in this sentence for increased acceptability follows a general principle for some speakers that many Korean sentences sound more natural when not every possible argument is phonologically overt.

(560) Ilum-i catongcek-ulo kilok.ha-key toy-ess-ta.
name-Nom automatic-Adv record-Adv become-Pst-Dec
'The names were automatically made to be recorded.'

Some of my consultants expressed the intuition that (560) did not seem to be a genuine passive of causative. Research on passives of causatives is complicated by the use of *toy-ta* 'become' as a passive auxiliary at the same time it also can express developments of situations. Under that second possibility for *toy-ta*, *ilum-i* in (560) is indeed a Focus NP, but the subject of *toy-ess-ta* is not the unexpressed causee, but a clause with an unexpressed subject, specifically the clause *catongcek-ulo kilok.ha-key* 'automatically record-Adv'. A sentence fragment which more clearly exemplifies this second use of *toy-ta* 'become' is given in (561).

(561) Nay-ka Sewul-ey ka-key toy-myen,
I-Nom Seoul-Dat go-Adv become-if
'If it turns out that I go to Seoul,'

The second reading of *toy-ta* 'become' means that research in this area cannot rely on predicting that certain strings of words will be ungrammatical. Instead, semantic research would need to determine the possible semantic range of passive and of this 'turn out' construction in order to separate out which data reflects clearly on passive analyses and which data cannot bear on questions of passive.

My conclusion is that the semantics of the Focus NP construction could easily interact with the semantics of the lexical and periphrastic causatives in such a way that Focus NP passives are very unusual for periphrastic causatives, but possible in a limited range of sentences. In this section, I have produced grammatical passive periphrastic examples with a nominative theme and a nominative causee, and with a nominative theme and a phonologically unexpressed causee. I believe these examples are sufficient to counter claims that the periphrastic causative must be biclausal because it has a different set of corresponding passives from other sentences with two accusative objects. Adopting the Focus NP analysis of double nominative passives has allowed us to correctly predict the ordering facts observed in the double nominative passive periphrastic causative examples (558) and (559). The polysemous nature of the passive auxiliary *toy-ta* 'become' leads to additional readings for some sentences, and thus makes it more difficult to argue for the superiority of a syntactic analysis with clear grammaticality predictions, without a solid semantic grounding. However, my analysis is consonant with all the facts laid out here, in support of my overall goal in this passive section of demonstrating the compatibility of a monoclausal analysis of causative with the passivization facts in Korean.

5.4.1.3 Passive of Causative in My Analysis

My analysis of the passives of lexical and periphrastic causatives involves no additional specifications or restrictions on my basic analysis of passive. The one interesting fact brought out by passive of both causatives is that the obliqueness ordering of lexical causatives differs from that of periphrastic causatives. In active lexical causatives, the theme is the least oblique member of the COMPS list, and thus passive lexical causatives have a theme subject. In active periphrastic causatives, the causee is the least oblique member of the COMPS list, leading passive periphrastic causatives to have a causee subject. For both types of causative, there is only one possible passive sentence corresponding to each active sentence.

The obliqueness reflected in lexical causatives matches the typical semantics-syntax mapping for a verb, with the theme as the least oblique member of the COMPS list. This reflects the older, more established, more lexicalized status of the lexical causatives.

The COMPS list of the periphrastic causative has the causee, which is identified with the sole member of the lower verb's SUBJ list, as its least oblique item. This obliqueness order reflects the productivity and more recent grammaticalization of the periphrastic causative, as the lower SUBJ list does not intermingle with the lower COMPS list on the higher causative COMPS list. Intermingling of the lower SUBJ and COMPS list on the higher COMPS list when they combine through argument composition would be theoretically possible, but it would involve a more complex specification. Thus, I expect crosslinguistic cases of argument composition to have intermingling of the lower SUBJ and COMPS lists infrequently, unless there are signs of increasing grammaticalization of the construction.

In the remainder of this section, I will provide detailed HPSG signs and explanations of each component of my analysis of passive of lexical causatives and of periphrastic causatives.

5.4.1.3.1 Analyzing Passive of Lexical Causatives The description of my analysis of passive of lexical causative begins with the HPSG signs for the passive auxiliary and the passivizing suffix, as well as for an active lexical causative verb. With these ingredients, we can trace the combination of the lexical causative with the passive suffix, and then the combination of that passivized verb with the passive auxiliary. At each point, the properties of the basic HPSG signs completely determine the properties of the combined HPSG signs, including the focus of the preceding sections: the determination of the passive subject.

After the description of passive of lexical causative, I touch on related issues, namely, case marking in passive, the inability of double accusative verbs to passivize, and Focus double nominative passives.

Our detailed analysis of passive of lexical causative will examine all of the relevant contributors of information in the passive lexical causative sentence in (533), repeated here as (562).

(562)	Os-i	Mary-**eykey**	ip-hi-e	ci-ess-ta
	clothes-Nom	Mary-Dat	wear-Caus-Cmp	PasAux-Pst-Dec
	'The clothes were made to be worn by Mary.'			

The first HPSG sign we will examine belongs to the lexical causative stem *ip-hi* 'cause to wear'. This stem contributes the information of the syntactic arguments for the sentence and the semantic roles they play.

(563)

$$\left[\begin{array}{ll} \text{PHON} & \langle \text{ip-hi} \rangle \\ \text{SYNSEM} & \left[\begin{array}{ll} \text{CAT} & \left[\begin{array}{ll} \text{HEAD} & [\,\textit{verb}\,] \\ \text{VFORM} & \text{stem} \\ \text{SUBJ} & \langle \text{NP}_{\boxed{1}} \rangle \\ \text{COMPS} & \langle \text{NP}_{\boxed{3}},\ \text{NP}_{\boxed{2}} \rangle \end{array}\right] \\ \text{CONTENT} & \left[\begin{array}{ll} \text{RELN} & \text{cause} \\ \text{CAUSER} & \boxed{1} \\ \text{CAUSEE} & \boxed{2} \\ \text{SOA-ARG} & \left[\begin{array}{ll} \text{RELN} & \text{wear} \\ \text{WEARER} & \boxed{2} \\ \text{WORN} & \boxed{3} \end{array}\right] \end{array}\right] \end{array}\right] \end{array}\right]$$

Our lexical causative example sentence in (562) has the passivized form of the sign in (563), resulting from the lexical combination of the stem *ip-hi-* 'cause to wear' with the passive suffix *-e*. The HPSG sign for the passive suffix *-e* is given below in (564).

(564)

$$\left[\begin{array}{ll} \text{PHON} & \langle \text{e} \rangle \\ \text{SYNSEM} & \left[\begin{array}{ll} \text{CAT} & \left[\begin{array}{ll} \text{HEAD} & [\,\textit{verb}\,] \\ \text{VFORM} & \text{passive} \\ \text{SUBJ} & \langle \boxed{2} \rangle \\ \text{COMPS} & \text{L} \oplus \left\langle \left[\begin{array}{ll} \text{HEAD} & [\,\textit{verb}\,] \\ \text{VFORM} & \text{stem} \\ \text{SUBJ} & \langle \boxed{1} \rangle \\ \text{COMPS} & \langle \boxed{2} \rangle \oplus \text{L} \\ \text{CONTENT} & \boxed{4} \end{array}\right] \right\rangle \end{array}\right] \\ \text{CONTENT} & \boxed{4} \end{array}\right] \end{array}\right]$$

As we see in (564), the passive suffix takes as its subject the least oblique item on the COMPS list of its verbal complement, inheriting the rest of the members of this lower COMPS list to its own COMPS list. These members are represented in (564) by the variable "L". The content of the passive suffix *-e*, and thus the passivized verb headed by this suffix, is the same as the content of its verbal complement. This corresponds to the intuition that the basic semantic relation and its roles do not change in a passive sentence from the corresponding active sentence.

In the lexicon, the lexical causative stem combines with the passive suffix as its complement, forming the passive lexical causative HPSG sign given in (565).

(565)

$$\begin{bmatrix} \text{PHON} \ \langle \text{ ip-hi-e } \rangle \\ \text{SYNSEM} \begin{bmatrix} \text{CAT} \begin{bmatrix} \text{HEAD} \begin{bmatrix} \textit{verb} \end{bmatrix} \\ \text{VFORM passive} \\ \text{SUBJ} \ \left\langle \text{NP}\boxed{3} \right\rangle \\ \text{COMPS} \ \langle \text{NP}\boxed{2} \rangle \end{bmatrix} \\ \text{CONTENT} \begin{bmatrix} \text{RELN cause} \\ \text{CAUSER} \ \boxed{1} \\ \text{CAUSEE} \ \boxed{2} \\ \text{SOA-ARG} \begin{bmatrix} \text{RELN wear} \\ \text{WEARER} \ \boxed{2} \\ \text{WORN} \ \boxed{3} \end{bmatrix} \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

The lower theme, represented by the boxed $\boxed{3}$ in (565), is the least oblique item on the COMPS list of the active lexical causative, and thus it becomes the subject of the passivized lexical causative. (565) has [VFORM passive], as determined by the passive suffix *-e*.

[VFORM passive] matches the subcategorization requirements of the passive auxiliary *ci-ta*, as shown in the HPSG sign in (566), repeated from (504).

(566)

$$\begin{bmatrix} \text{PHON} \ \langle \text{ ci-ta } \rangle \\ \text{SYNSEM} \begin{bmatrix} \text{CAT} \begin{bmatrix} \text{HEAD} \left[\textit{verb} \right] \\ \text{SUBJ} \ \boxed{2} \\ \text{COMPS} \left\langle \begin{bmatrix} \text{HEAD} \left[\textit{verb} \right] \\ \text{LEX} \ + \\ \text{VFORM passive} \\ \text{SUBJ} \ \boxed{2} \\ \text{COMPS} \ \boxed{3} \\ \text{CONTENT} \ \boxed{4} \end{bmatrix} \right\rangle \oplus \ \boxed{3} \end{bmatrix} \\ \text{CONTENT} \ \boxed{4} \end{bmatrix} \end{bmatrix}$$

Several specifications in that sign are important to note for their effect on passive sentences. The passive auxiliary will combine syntactically with the passivized lexical causative verb in a verbal complex, due to the [LEX +] specification for the verbal complement, as seen in (566). As a result of its specification, *ci-ta* will inherit as its subject, the subject of its verbal complement. Since that complement was passivized lexically by the suffix *-e*, *ci-ta* will inherit the passive subject directly, and not perform any additional relation-changing operations through argument composition.

The HPSG sign representing the verbal complex composed of the passive auxiliary *ci-ta* and its passivized lexical causative complement *ip-hi-e* 'be made to be worn' is given below in (567).

(567)

$$\begin{bmatrix} \text{PHON} \ \langle \text{ ip-hi-e ci-ta } \rangle \\ \text{SYNSEM} \begin{bmatrix} \text{CAT} \begin{bmatrix} \text{HEAD} \begin{bmatrix} \textit{verb} \end{bmatrix} \\ \text{SUBJ} \ \left\langle \text{NP}_{\boxed{3}} \right\rangle \\ \text{COMPS} \left\langle \text{NP}_{\boxed{2}} \right\rangle \end{bmatrix} \\ \text{CONTENT} \begin{bmatrix} \text{RELN cause} \\ \text{CAUSER } \boxed{1} \\ \text{CAUSEE } \boxed{2} \\ \text{SOA-ARG} \begin{bmatrix} \text{RELN wear} \\ \text{WEARER } \boxed{2} \\ \text{WORN } \boxed{3} \end{bmatrix} \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

The combination of the HPSG sign in (567) with its noun phrase arguments is as simple as the combination of any transitive verb with its subject and object. Thus, we have seen the individual HPSG signs for all the components of a passive of a lexical causative, and are able to fully analyze the lexical and syntactic reflections of passive relation changing in an example sentence such as (562).

A dimension of the analysis which is not directly apparent from the individual HPSG signs is how the correct case marking occurs in passive sentences. No additional specifications or rules are necessary to account for passive case marking; my Case Principles predict the correct case patterns in passive sentences.

The passive subject must bear nominative case, and no other case, because it is an argument satisfied from the SUBJ list and bearing the specification CASE [*gram*]. This case specification is the same CASE [*gram*] marking borne by the lower object of the active lexical causative. Inheritance of this argument, first by the passive suffix -*e*, then by the passive auxiliary *ci-*, does not change or affect the case specification in any way. The distinction between accusative case for objects and nominative case for subjects occurs at the point of subcategorization satisfaction, with different Case Principles applying to the different subcategorization lists. The Subject Case Principle applies to the SUBJ list, and specifies any NP bearing CASE [*gram*] on that list as being the *grammatical* [CASE Nom], i.e. nominative.

The demoted passive agent, the causer in these examples, bears semantic case, in the ordinary fashion for adjuncts. The demoted adjunct would be added by the Adjunct Addition Lexical Rule to the COMPS list if it appears in the sentence; its only regular presence in all passives is in the CONTENT of the passivized verb, which is identical to the CONTENT of the active verb.

The dative goal or causee argument retains its semantic case. There is no nominative case assignment to the COMPS list in this kind of example; the only way for a goal or causee argument in a passive of lexical causative to bear nominative case is to be a Focus NP, as Focus NP's are always nominative.

When we compare a passive of lexical causative sentence like (562) with an active sentence with a dative causee, then the dative case in the passive sentence is expected, as the same semantic case expressed in the active sentence. However, if we consider an active sentence with an accusative causee, such as (568), we would expect that accusative case, as in the active sentence, would also be possible in a passive sentence.

(568) Nay-ka Mary-**lul** os-ul ip-hi-ess-ta
I-Nom Mary-Acc clothes-Nom wear-Caus-Pst-Dec
'I made Mary wear the clothes.'

However, accusative case is not possible on the causee or on a goal argument in a passive sentence, as exemplified by (569).

(569) *Os-i Mary-**lul** ip-hi-e ci-ess-ta
clothes-Nom Mary-Acc wear-Caus-Cmp PasAux-Pst-Dec
'The clothes were made to be worn by Mary.'

The Case Principles would predict that any item on the COMPS list of a non-stative verb, bearing a [CASE *gram*] specification would be specified as [CASE Acc] by the Object Case Principle. Thus, my analysis as given so far, does not predict the ungrammaticality of (569).

In fact, the Case Principles could only be responsible for the ungrammaticality of a sentence if a verb lexically specified a [CASE *gram*] value which was incompatible with the specification given by the Case Principles at the point of subcategorization specification. This kind of explanation for ungrammaticality would, in my view, be immediately suspect. The whole force of the motivation for Case Principles applying in the syntax was the elimination of lexical specification which might need to be altered in favor of specification at the point of subcategorization satisfaction, which reflects the syntactic environment of the argument and the predicate.

Instead of seeing the ungrammaticality of (569) as an indication of a restriction on accusative case in passive, I see it as a restriction on the application of passive to double accusative verbs as in (568).

Double accusative verbs could be prevented from undergoing passive by lexically specifying that all inherited arguments on the COMPS list of *ci-ta* bear CASE [*sem*], as given partial representation in the HPSG sign in (570). (A complete HPSG representation would indicate that the restriction to only CASE [*sem*] inherited items on the COMPS list is independent of the number of arguments on that list.) This would prevent any objects from being eligible to receive accusative case from the Object Case Principle, because there would be no objects bearing CASE [*gram*].

(570) Passive Auxiliary requiring Semantic Case Objects Only (Not Adopted)

$$\begin{bmatrix} \text{PHON} \ \langle \text{ ci-ta } \rangle \\ \text{CAT} \begin{bmatrix} \text{HEAD} \begin{bmatrix} \textit{verb} \end{bmatrix} \\ \text{SUBJ} \ \boxed{2} \\ \text{COMPS} \left\langle \begin{bmatrix} \text{HEAD} \begin{bmatrix} \textit{verb} \end{bmatrix} \\ \text{LEX} \ + \\ \text{VFORM passive} \\ \text{SUBJ} \ \boxed{2} \\ \text{COMPS} \ \boxed{3} \langle \text{NP}[\text{CASE } \textit{sem}], \ \text{NP}[\text{CASE } \textit{sem}] \rangle \\ \text{CONTENT} \ \boxed{4} \end{bmatrix} \right\rangle \oplus \boxed{3} \end{bmatrix} \\ \text{CONTENT} \ \boxed{4} \end{bmatrix}$$

However, I see this as undesirable because it rules out passives with accusative objects without addressing the underlying reason why these sentences might be bad.

Recall that the number of double accusative verbs varies greatly from speaker to speaker, with some speakers permitting only a few verbs in this class (O'Grady 1991:53, Y. Kang 1986:73 fn.22). K. Hong (1991b:165) describes the semantic correlate of multiple accusative verbs as being the existence of multiple "Determinees" for the action described, that is, multiple delimiting arguments in the sense of Tenny (1987, 1994).[30] Since passive of prototypical verbs often sounds unnatural to many Korean speakers, the application of passive to a semantically marked class of verbs is likely to create an even more unnatural sort of sentence, especially since the marked class is very limited in number for many speakers.

I propose accounting for the ungrammaticality of sentences like (569) by restricting the semantic type of the verbs which the passivizing suffix *-e* can lexically attach to. A preliminary characterization of this semantic type distinction would divide singly delimited verbs from non-delimited verbs or multiply delimited verbs, in the sense of Tenny (1987, 1994). Thus, the passivizing suffix *-e* would only attach to verbs of semantic type *sing-delim*,[31] as in the revised HPSG sign for *-e* given in (571), and double accusative verbs would belong to the semantic type *mult-delim*.

[30] It is important to note that Tenny (1994:79) proposes the Single Delimiting Constraint, which states "The event described by a verb may only have one measuring-out and be delimited only once." However, she also states (1994:83) that "Double object constructions, whatever the principles that apply to them, are outside the scope of the Measuring-Out Constraint on direct internal arguments, and the Terminus Constraint on indirect internal arguments. They are put aside here to await further investigation."

[31] The restriction of passive to singly delimited verbs may reflect the connection between passive and inchoative seen in the auxiliaries *ci-ta* and *toy-ta*, which each function as both passive and inchoative. Inchoative verbs would naturally be delimited by a single changing object; perhaps this characteristic was inherited by the passive forms if they originally developed from the inchoative forms, or perhaps the characteristic was acquired by the passive forms through analogy to their homophonous inchoative counterparts.

(571)

$$\left[\begin{array}{ll}
\textsc{phon} & \langle \text{ e } \rangle \\
\textsc{synsem} & \left[\begin{array}{ll}
\textsc{cat} & \left[\begin{array}{ll}
\textsc{head} & \left[\, \textit{verb} \,\right] \\
\textsc{vform} & \text{passive} \\
\textsc{subj} & \langle \boxed{2} \rangle \\
\textsc{comps} & \text{L} \oplus \left\langle \left[\begin{array}{ll}
\textsc{head} & \left[\, \textit{verb} \,\right] \\
\textsc{vform} & \text{stem} \\
\textsc{subj} & \langle \boxed{1} \rangle \\
\textsc{comps} & \langle \boxed{2} \rangle \oplus \text{L} \\
\textsc{content} & \boxed{4}\ [\textit{sing-delim}]
\end{array}\right] \right\rangle
\end{array}\right] \\
\textsc{content} & \boxed{4}
\end{array}\right]
\end{array}\right]$$

The grammaticalization of the semantic subcategorization into a type means that speakers will find sentences like (569) ungrammatical, rather than finding gradable acceptability based on their conceptualization of the situation described.

O'Grady (1991:64) proposes a similar analysis, allowing the application of the *ci*-passive only to transitive verbs, ruling out passives of intransitives and of ditransitives. Just as O'Grady uses his restriction to account for the lack of passives of intransitives in Korean, as in his example (572), my proposal will rule out most intransitive verbs as not belonging to the *sing-delim* type.

(572) *Wuntong.senswu-ey.uyhayse talli-e ci-ess-ta
athlete-by run-Cmp PasAux-Pst-Dec
'There was running by the athletes.'

Unaccusative intransitive verbs such as *tha-ta* 'burn' will be singly delimited, but they will not have an object on the COMPS list which can become the passive subject. Thus, syntax alone rules out the passive of unaccusative intransitives, but semantics as well as syntax rules out the passive of unergatives. This syntactic restriction of having an object on the active COMPS lists to correspond to the passive SUBJ list does not apply to the double accusative verbs, which do have such objects.

A crude HPSG representation for the delimiter of a semantic relation would be to list it with the semantic roles in a verb's CONTENT. Lexical conventions would typically identify the DELIMITER feature with themes, paths, or items changing states. Thus a typical verb might have a semantic relation as given in (573), where the theme argument of "eaten" is identified with the delimiting argument.

(573)

$$\begin{bmatrix} \text{CONTENT} & \begin{bmatrix} \text{RELN eat} \\ \text{EATER } \boxed{1} \\ \text{EATEN } \boxed{2} \\ \text{DELIMITER } \boxed{2} \end{bmatrix} \end{bmatrix}$$

The multiply delimited double accusative verbs will have lexical entries produced by the Multiple Delimitation Lexical Rule, given below. This rule changes the sort of the verb's CONTENT from *sing-delim* to *mult-delim* and adds an additional delimiter to the content of the verb, while concurrently changing the CASE specification of the additional delimiting argument from semantic case to grammatical case.[32] The change in semantic sort from *sing-delim* to *mult-delim* is necessary to permit the ADDIT-DELIMITER to be listed; this feature is incompatible with the *sing-delim* sort.

[32]There may be semantic restrictions on precisely which NP's with semantic case are eligible to become the additional delimiting argument in the Multiple Delimitation Lexical Rule, but they are outside the scope of this thesis.

(574) **Multiple Delimitation Lexical Rule**

$$\begin{bmatrix} \text{CAT} \begin{bmatrix} \text{COMPS} \left\langle \text{NP}\begin{bmatrix}\text{CASE } \textit{gram}\end{bmatrix}_{\boxed{2}},\ \text{NP}\begin{bmatrix}\text{CASE } \textit{sem}\end{bmatrix}_{\boxed{3}} \right\rangle \end{bmatrix} \\ \text{CONTENT} \begin{bmatrix} \textit{sing-delim} \\ \text{DELIMITER } \boxed{2} \end{bmatrix} \end{bmatrix}$$

$$\Longrightarrow$$

$$\begin{bmatrix} \text{CAT} \begin{bmatrix} \text{COMPS} \left\langle \text{NP}\begin{bmatrix}\text{CASE } \textit{gram}\end{bmatrix}_{\boxed{2}},\ \text{NP}\begin{bmatrix}\text{CASE } \textit{gram}\end{bmatrix}_{\boxed{3}} \right\rangle \end{bmatrix} \\ \text{CONTENT} \begin{bmatrix} \textit{mult-delim} \\ \text{DELIMITER } \boxed{2} \\ \text{ADDIT-DELIMITER } \boxed{3} \end{bmatrix} \end{bmatrix}$$

My analysis attempts to link the unacceptability of the passives of double accusatives to their unusual semantics rather than to their syntactic properties, because of the grammatical passives of sentences with two objects of differing cases, as in (562). I make a greater theoretical distinction between verbs with a prototypical singly delimited sense and verbs which have taken on a multiply delimited semantic sense, and as a result have dual CASE [*gram*] objects, through lexical rule, than I do between the various number of items of a particular CASE value on two verb's COMPS lists.

While the distinction between the more usual singly delimited transitive verbs and the unusual multiply delimited double accusative verbs may appear to neatly explain the inability of monomorphemic double accusative verbs such as *cwu-ta* 'give' to have passives with accusative objects, lexical causatives may not appear to belong to a class of multiply delimited verbs due to their nested semantics. It would be most natural to assume that the lower theme would delimit the lower semantic relation, and the accusative causee would delimit the higher CAUSE relation. However, there is in fact evidence that double accusative lexical causatives are correctly classified as multiply semantically delimited.

We have already seen that in the lexical causative, the CAUSE relation and the semantic relation of the lower verb are not entirely distinct: their location and time are shared, producing the effect of direct causation. A second way in which the lower semantic relation can be seen as interacting with the higher relation is in the effect of the presence of a lower accusative argument on the case marking of the causee.[33] If there is no lower object, the causee must bear accusative case, and cannot bear dative. Since dative is a semantic case, the causee must be semantically incompatible with dative case only when there is no lower object. This kind of dependence of the higher relation semantics on the lower relation means that a purely nested description, as in the nesting that occurs with ordinary embedded clauses, will not correctly describe the lexical causative.

Against the background of these interdependencies between the higher and lower semantic relations in the lexical causatives, characterizing the double accusative lexical causatives as multiply delimited may seem plausible. To establish that not only is this account plausible, but in fact independently motivated, I turn to evidence demonstrating the implicativity of the lexical causative, but not the periphrastic causative.

C. Lee (1973b:141–142) and Patterson (1974:16–18) draw a contrast between the lexical and periphrastic causative in their implicativity, in the sense of Karttunen (1971). E. Cho (1988:203–204) also discusses the lack of implicativity in periphrastic causatives. The lexical causative is implicative, meaning that it implies the truth of its complement. In contrast, the periphrastic causative is non-implicative, and does not imply the truth of its complement.[34] This property can be brought out more clearly by putting a causative sentence in a context in which the truth of the complement is denied. This kind of context makes a lexical causative ungrammatical,

[33]Speakers with a transitivity restriction in the periphrastic causative, as discussed in Section 4.6.3.2, have the same effect of a lower accusative argument for periphrastic causatives. Thus, this effect may follow from other semantic or syntactic properties, and I do not count this causee case-marking evidence as in any way conclusive on the question of the degree of semantic nesting.

[34]S. Song (1988:213) dismisses Patterson's argument about the implicativity of lexical causatives on the grounds that it would not be an expected property for a verbal suffix as opposed to a whole verb. I disagree with this viewpoint, on the basis of the demonstrated utility in this thesis of analyzing suffixes with the same features and distinctions as whole words.

as seen in (575a), but is perfectly compatible with a periphrastic causative, as seen in Patterson's examples in (575b).

(575) a. *?Ku-ka na-eykey kimchi-lul **mek-i-ess-una,** nay-ka (kimchi-lul)
he-Nom me-Dat kimchi-Acc eat-Caus-Pst-but I-Nom kimchi-Acc
mek-ci anh-ass-ta
eat-Cmp NegAux-Pst-Dec
'He made me eat kimchi, but I didn't eat it.'

b. Ku-ka na-eykey kimchi-lul **mek-key** ha-yss-una, nay-ka (kimchi-lul)
he-Nom me-Dat kimchi-Acc eat-Adv do-Pst-but I-Nom
an mek-ess-ta
kimchi-Acc not eat-Pst-Dec
'He made (tried to make) me eat kimchi, but I didn't eat it.'

Another way to bring out the effects of implicativity is to negate an implicative verb which has a negative complement, so that the resulting sentence ends up with an affirmative reading. The sentence in (576) with the English implicative verb *manage* illustrates this property.

(576) John **didn't** manage **not** to solve the problem.

The Korean lexical causative in the negative and with a negative complement also gives a positive reading, as Patterson demonstrated in (577a).

(577) Ku-ka na-eykey kimchi-lul **an** mek-i-**ci** **anh**-ass-ta
he-Nom me-Dat kimchi-Acc not eat-Caus-Cmp NegAux-Pst-Dec
'He caused me to eat kimchi.'

The property of implicativity means that the action described by the lower relation in the lexical causative must succeed in order for the causation action to be successful. This means that if a lower theme measures the progress towards completion of the lower relation, it also measures the progress towards completion of the causation relation. Thus, instead of having separate delimiters for the two distinct nested semantic relations, lexical causatives have a single delimiter for both semantic relations.

The usual HPSG representation for sentences with nested semantics would involve a separate delimiter for each relation, although the delimiter of the higher clause could be the argument played by the embedded clause as a whole, as in (578) below. Still, the delimiters of the two relations in this example are distinct from each other.

(578)

$$\left[\begin{array}{ll} \textsc{content} & \left[\begin{array}{ll} \multicolumn{2}{l}{\textit{sing-delim}} \\ \textsc{reln} & \text{describe} \\ \textsc{describer} & \\ \textsc{described} & \boxed{1}\left[\begin{array}{l} \textit{sing-delim} \\ \textsc{reln}\ \text{eat} \\ \textsc{eater} \\ \textsc{eaten}\ \boxed{2} \\ \textsc{delimiter}\ \boxed{2} \end{array}\right] \\ \textsc{delimiter}\ \boxed{1} & \end{array}\right] \end{array}\right]$$

In the lexical causative, the delimiter of the higher semantic relation would be identified with that of the lower semantic relation, as in (579).

(579)

$$\left[\begin{array}{ll} \textsc{content} & \left[\begin{array}{ll} \multicolumn{2}{l}{\textit{sing-delim}} \\ \textsc{reln}\ \text{cause} & \\ \textsc{causer} & \\ \textsc{causee}\ \boxed{1} & \\ \textsc{soa-arg} & \left[\begin{array}{l} \textit{sing-delim} \\ \textsc{reln}\ \text{eat} \\ \textsc{eater}\ \boxed{1} \\ \textsc{eaten}\ \boxed{2} \\ \textsc{delimiter}\ \boxed{2} \end{array}\right] \\ \textsc{delimiter}\ \boxed{2} & \end{array}\right] \end{array}\right]$$

When the lexical causative undergoes the lexical rule creating double accusative verbs, it acquires a second delimiter for the higher relation and becomes multiply-delimited. This yields a representation as in (580).

(580)
$$\left[\begin{array}{ll}\textsc{content} & \left[\begin{array}{ll}\multicolumn{2}{l}{\textit{mult-delim}}\\ \multicolumn{2}{l}{\textsc{reln}\ \text{cause}}\\ \multicolumn{2}{l}{\textsc{causer}}\\ \multicolumn{2}{l}{\textsc{causee}\ \boxed{1}}\\ \textsc{soa-arg} & \left[\begin{array}{l}\textit{sing-delim}\\ \textsc{reln}\ \text{eat}\\ \textsc{eater}\ \boxed{1}\\ \textsc{eaten}\ \boxed{2}\\ \textsc{delimiter}\ \boxed{2}\end{array}\right]\\ \multicolumn{2}{l}{\textsc{delimiter}\ \boxed{2}}\\ \multicolumn{2}{l}{\textsc{addit-delimiter}\ \boxed{1}}\end{array}\right]\end{array}\right]$$

We can relate this unusual property of the lexical causatives' shared delimitedness between higher and lower relations to the more grammaticalized status of the lexical causative, compared with the periphrastic causative. The fact that the lower theme is less oblique than the causee, with the other lower arguments more oblique than the causee, demonstrates that the lexical causative obliqueness pattern conforms with ordinary verbs whose arguments are marked nominative, accusative, and dative. Along with this switch in obliqueness from the simple concatenation of the causee with all lower arguments comes the loss of the original CASE [*gram*] specification for the causee, a natural concomitant occurrence. Accusative case marking on the causee occurs only in the multiply-delimited variant of the lexical causative, produced by the same lexical rule as would produce accusative case marking on goals of double object verbs such as *cwu-ta* 'give'.

Thus, the nonappearance of accusative case in passives of lexical causatives reflects the inability of multiply delimited verbs to passivize. Once this restriction on passive is recognized, the analysis of passive of lexical causatives is straightforward, with the case marking following from the general Case Principles.

5.4.1.3.2 Analyzing Passive of Periphrastic Causatives I now move to the complete description of my analysis of passive of periphrastic causatives. As for the passives of lexical causatives, I trace the combination of the passive suffix with the causative, and the combination of this passivized verb with the passive auxiliary. Taken together with this passive analysis, the Case Principles yield the correct case marking for passives of periphrastic causatives. My analysis differs even from monoclausal analyses like Gerdts (1986, 1990) and O'Grady (1991) in not treating the lower object and verb as any kind of syntactic unit in passive.

(581a) gives an example of a periphrastic causative, with its passive in (581b).

(581) a. Sensayngnim-kkeyse na-eykey chayk-ul ilk-key hay-ss-ta
teacher-HNom me-Dat book-Acc read-Adv do-Pst-Dec
'The teacher made me read the book.'

b. Nay-ka chayk-ul ilk-key toy-ess-ta
I-Nom book-Acc read-Adv PasCausAux-Pst-Dec
'I was made to read the book.'

As discussed in the section on *toy-ta* passives, since the periphrastic causative is formed with the auxiliary *ha-ta*, its passive most naturally involves the auxiliary *toy-ta* 'become' in place of the causative auxiliary *ha-ta* 'do'. The lexical entry for the form of passive-causative *toy-ta* which subcategorized for verbs ending in *-key*, originally given in (514), is repeated below in (582).

(582)

$$\begin{bmatrix} \text{PHON} \ \langle \text{ toy-ta } \rangle \\ \text{CAT} \begin{bmatrix} \text{HEAD} \begin{bmatrix} \textit{verb} \end{bmatrix} \\ \text{SUBJ} \ \left\langle \text{NP}_{\boxed{1}} \right\rangle \\ \text{COMPS} \left\langle \begin{bmatrix} \text{HEAD} \begin{bmatrix} \textit{verb} \end{bmatrix} \\ \text{VFORM -key} \\ \text{LEX} \ + \\ \text{SUBJ} \ \left\langle \text{NP}_{\boxed{1}} \right\rangle \\ \text{COMPS} \ \boxed{2} \\ \text{CONTENT} \ \boxed{3} \end{bmatrix} \right\rangle \oplus \ \boxed{2} \end{bmatrix} \\ \text{CONTENT} \begin{bmatrix} \text{RELN cause} \\ \text{CAUSER} \\ \text{CAUSEE} \ \boxed{1} \\ \text{SOA-ARG} \ \boxed{3} \end{bmatrix} \end{bmatrix}$$

In the syntax, *toy-ta* will combine through the Lexical Complex Schema with the active lower verb. As a consequence of argument composition, *toy-ta* will inherit the subject of the lower verb as its own subject, specifically, the causee, identified with the numerical tag $\boxed{2}$ in (582). *toy-ta* will inherit all of the items on the lower verb's COMPS list to its own COMPS list, as indicated by the tag $\boxed{3}$ in (582). Thus, the combination of passive and causative in one auxiliary means that the "advancement" of the object seen in passive and the "lowering" of the subject seen in causatives cancel each other's apparent syntactic effect, preserving the original grammatical relations of the lower verb. The difference between the simple lower verb and the passive-causative of the lower verb is in the semantic CONTENT, where the "cause" relation has been added, giving the lower subject the additional semantic role of "causee", and adding a "causer" semantic role, which may end up identified with an adjunct.

As an example, let us examine below the HPSG sign for *toy-ta* combined with the lower verb *ilk-key* 'read', as in the example sentence (581b).

(583)

$$
\begin{bmatrix}
\text{PHON} \ \langle \text{ ilk-key toy-ta } \rangle \\
\text{CAT} \begin{bmatrix} \text{HEAD} \begin{bmatrix} \textit{verb} \end{bmatrix} \\ \text{SUBJ} \ \left\langle \text{NP}_{\boxed{1}} \right\rangle \\ \text{COMPS} \left\langle \text{NP}_{\boxed{2}} \right\rangle \end{bmatrix} \\
\text{CONTENT} \begin{bmatrix} \text{RELN cause} \\ \text{CAUSER} \\ \text{CAUSEE } \boxed{1} \\ \text{SOA-ARG } \boxed{3} \end{bmatrix} \\
\text{COMP-DTRS} \left\langle \begin{bmatrix} \text{HEAD} \begin{bmatrix} \textit{verb} \end{bmatrix} \\ \text{VFORM -key} \\ \text{LEX } + \\ \text{SUBJ} \ \left\langle \text{NP}_{\boxed{1}} \right\rangle \\ \text{COMPS} \ \left\langle \text{NP}_{\boxed{2}} \right\rangle \\ \text{CONTENT } \boxed{3} \begin{bmatrix} \text{RELN read} \\ \text{READER } \boxed{1} \\ \text{READ } \boxed{2} \end{bmatrix} \end{bmatrix} \right\rangle
\end{bmatrix}
$$

(583) shows us that the "reader" subject of *ilk-key* is inherited as the "causee" subject of *toy-ta*. The "read" object of *ilk-key* corresponds to a syntactic complement of *toy-ta*, but it does not fill any semantic role in the "cause" relation.

The case marking in passive of causative sentences like (581b) follows automatically from the Case Principles. The causee subject of *toy-ta* receives Nominative case from the Subject Case Principle, just as the subject of *ilk-key* 'read' would receive Nominative case from the same Case Principle in a simple sentence. The lexical entry for *ilk-key* specifies its subject with grammatical case, i.e. CASE [*gram*], which is further specified as Nominative case when the subject combines with a VP due to the Subject Case Principle. *toy-ta* inherits the CASE [*gram*] specification, and thus the passive of causative sentence has the same subject case marking as the simple sentence.

Similarly, the theme in (581b) receives accusative case, the same case it would have received in a simple sentence. *ilk-key* 'read' lexically specifies its object as bearing CASE [*gram*], and *toy-ta* will inherit this specification when it inherits the object onto its own COMPS list. In either a simple sentence or a passive of causative sentence, when the CASE [*gram*] object is satisfied from the COMPS list it will receive Accusative case from the Object Case Principle.

Any semantically case-marked objects on the COMPS list of the lower verb would, in the same manner, retain their semantic case marking in a *toy-ta* passive of causative sentence. A semantically case-marked argument corresponding to the causer would be lexically added as an adjunct to *toy-ta*'s COMPS list directly, rather than inherited from the lower verb, so its case marking is straightforward and identical to the semantic case marking of other passive agents.

Thus, the correct case marking for subjects and complements inherited from the lower verb is predicted by the combination of my Case Principles and my analysis of the *toy-ta* passive. A particular distinguishing characteristic of my analysis is that I permit the assignment of accusative case in passive sentences. Analyses like K. Hong (1991b:240) and Y. Kim (1990a:225–228) do not permit the assignment of accusative case in *ci-* or *toy-* passives, and thus treat sentences like (581b) as biclausal, with the accusative case assigned in a lower clause, not in the passive clause. O'Grady (1991:192) treats the lower object and verb as a unit untouched by passive, so that accusative may be assigned.

Gerdts (1986:160–161, 1990:235) analyzes passive as promoting the whole lower clause to the subject position before Causative Clause Union occurs. In her analysis, the causer is en chômage when Causative Clause Union occurs, so that the causee and lower object can inherit the 1 and 2 relations, corresponding to their original relations, in the union stratum. In some respects, the combination of the effects of causative and passive together in the *toy-* auxiliary's lexical entry yields a similar effect to Gerdts' analysis, although the mechanisms of our analyses differ in their connections to other parts of the analysis. Gerdts does not specifically allow the assignment of accusative case in passive, but she permits 2-hood to be inherited in a passive sentence, resulting in an accusative argument of a passive.

In my analysis, the availability of accusative case in the passive is crucial, because the passive verb is the verb which combines syntactically with the lower object, and the Case Principles apply at the point of subcategorization satisfaction in the syntax. The only contribution the lower verb makes is its lexical specification of its object as bearing grammatical case; the choice of accusative or nominative as the complete specification must occur through the Case Principles in the syntax.

The question of whether accusative case should be available in Korean passives arose because of the impossibility of accusative case on goal arguments, which could bear accusative case in addition to the accusative theme in the corresponding active sentences. (See (569) for an example.) I adopt the analysis that multiple accusative marking in such sentences represent a multiple semantic delimiting, in the sense of Tenny (1987, 1994), and that multiply delimited verbs are not eligible for passivization, due to a specification on the passivizing *-e* suffix. Since causatives generally passivize with the *toy-* causative-passive auxiliary, and not with the passive suffix *-e* and the *ci-ta* passive auxiliary, it would be possible to attribute the difference in case marking possibilities to the different specifications on the different forms of Korean passive. However, this is not an attractive analysis because for many speakers, passives of causatives using *-e* and *ci-ta* are marginally acceptable, and there is no evidence that the case marking properties of *ci-ta* passives of causatives differ at all from the case marking properties of *toy-ta* passives of causatives. Thus I prefer to draw a distinction between multiply delimited semantically monoclausal verbs or multiply delimited semantically biclausal verbs which share a delimiter between semantic relations on the one hand, and semantically biclausal verbs with a delimiting argument in each semantic clause on the other. This distinction makes the periphrastic causatives belong to a different semantic type from the double accusative monomorphemic or lexical causative verbs, and thus behave differently in passive.

5.4.1.4 Dual Passives and Passive of Semantic Arguments Only

Despite having based my complete account of passive upon the assumption that every verb has only a single passive realization, and having presented facts in support of that single passive analysis, I would like to present arguments against a particular analysis of passive based on the assumption that any accusative object should generally correspond to a passive subject, yielding two distinct passives corresponding to some active sentences. Because passive judgments are sometimes less certain for Korean speakers and other analyses (K. Hong 1991b, Y. Kim 1990a) have supported a dual passive analysis, I would like to make clear that a particular straightforward account of passive under the dual passive assumption is not tenable, namely, an analysis linking dual passives to semantic monoclausality. This analysis would postulate that lexical causatives have a second passive possibility from having a possible simple CONTENT.

Since the periphrastic causative allows the causee to be a passive subject, and the causee is in the higher level of the nested semantic CONTENT, while the lower theme in the periphrastic causative cannot be a passive subject, and the lower theme plays a role within the nested, lower semantic CONTENT, we could pursue an account where passive only applies to arguments which have a semantic role in the immediate, top level of the semantic RELATION of the passivized verb.

The immediate problems which would confront this approach are the lexical causative passives of lower themes and passivization of Subject-to-Object Raising sentences.

Lexical causatives are problematic because lexical causatives allow their lower theme to passivize and we have assumed that there is no major semantic difference between lexical and periphrastic causative with respect to the roles of their NP arguments and the nesting of the semantic RELATION's. We have seen semantic differences between lexical and periphrastic causatives in implicativity and time adverbs, however those differences would almost certainly be represented in a narrower way than the broad-based clausality distinctions of this particular semantic hypothesis.

A possible response to the conflict between the passivization properties of lexical and periphrastic causatives could be that the difference occurs due to the generally accepted fact that lexical causatives do not always have nested semantics. The literature on lexical causatives correlates semantic complexity with the possibility of adverbs having ambiguous modification possibilities between the higher and lower semantic relation and also with the cooccurrence of two adverbs of the same type, contrasting with simple sentences. An example of an ambiguous adverb in a lexical causative sentence is given below.

(584) Emeni-ka ai-eykey chayk-ul ppalli ilk-hi-ess-ta
mother-Nom child-Dat book-Acc quickly read-Caus-Pst-Dec
'Mother made the child read the book quickly.'/'Mother quickly made the child read the book.'

It is not the case that all sentences with lexical causatives always permit these kinds of adverbial properties; this fact led to the original discussion over whether to attribute semantic complexity to the lexical causatives. Below is an example from Shibatani (1973a) of a lexical causative sentence without such adverbial ambiguity.

(585) Pak-ssi-nun ai-lul namwu-ey twu-son-ulo ol-li-ess-ta
Park-Mr.-Top child-Acc tree-to two-hand-with go.up-Caus-Pst-Dec
'Mr. Park lifted the child up the tree with both (Mr. Park's) hands.'
*'Mr. Park made the child go up the tree using both (child's) hands.'

If every semantically complex lexical causative were homophonous with a semantically simple lexical causative, none of the above data would change, since adding this additional lexical entry would not predict grammatical sentences to be ungrammatical. The value of this move would be that we would have a new source for the second kind of passive. The lexical causative with the semantic nesting similar to the periphrastic causative would have its causee passivize, while the lexical causative without semantic nesting would have its lower theme passivize. In each case, the passivized argument would bear a role in the relation of the passivized verb.

Since passivization would not change the semantic relations or roles, we can check for independent evidence of this connection of passivization possibilities to semantic nesting. We would expect to see adverb ambiguity when the causee is the passive subject. When the lower theme is the passive subject, adverb ambiguity should be impossible. Looking at the crucial type of example in (586), with lower themes as passive subject, we find that the facts do not support our hypothesis. The two adverbial readings are available, even though we needed to have only one semantic relation in order to have the lower theme play a role in the passivized verb's relation.

(586) a. Chayk-i ai-eykey emeni-ey.uyhay ppalli ilk-hi-e
book-Nom child-Dat mother-Dat quickly read-Caus-Cmp
ci-ess-ta
PasAux-Pst-Dec
1. 'The book was made to be quickly read by the child by the mother.'/
2. 'The book was quickly made to be read by the child by the mother.'

b. Ppalkan os-i ai-eykey emeni-eyuyhay olay-tongan
red dress-Nom child-Dat mother-by long.time-during
ip-hi-e ci-ess-ta
wear-Caus-Cmp PasAux-Pst-Dec
1. 'The red dress was made to be worn a long time by the child by the mother.'/
2. 'The red dress was put on the child for a long time by the mother.'

The second objection to attributing an NP's ability to passivize to its property of bearing a semantic role could come from the fact that Subject-to-Object Raising examples passivize, as seen below.

(587) Mary-ka John-ul papo-la-ko sayngkak ha-n-ta
Mary-Nom John-Acc fool-be-Cmp think do-Pres-Dec
'Mary thinks John is a fool.'

(588) John-i Mary-eyuyhay papo-la-ko sayngkak toy-n-ta
John-Nom Mary-by fool-be-Cmp think become-Pres-Dec
'John is thought to be a fool by Mary.'

This fact might be disputable, since it is possible that the raised object plays a role in the higher relation in Korean. Sentential idioms do not appear to allow their subjects to be raised, as seen in the examples below. Each example has a grammatical, non-raised, embedded sentential idiom in (a), followed by one or more counterparts with Subject-to-Object Raising. None of the raised examples were completely acceptable, and my consultants generally found that the acceptability decreased from (589) to (590) to (591).

(589) a. Na-nun cak-un kochwu-**ka** mayp-tako mit-nun-ta
I-Top small-Adj pepper-Nom hot-Cmp believe-Pres-Dec
'I believe that small people are strong-willed.'

b. ??Na-nun cak-un kochwu-**lul** mayp-tako mit-nun-ta
I-Top small-Adj pepper-Acc hot-Cmp believe-Pres-Dec
'I believe that small people are strong-willed.'

(590) a. I kyengwu-ey-nun nay-ka paykkop-**i** pay-pota te khu-tako
this case-Dat-Top I-Nom navel-Nom belly-than more be.big-Cmp
mit-nun-ta.
believe-Pres-Dec
'In this case, I believe the subset is larger than the main thing.'

b. ?*I kyengwu-ey-nun nay-ka paykkop-**ul** pay-pota te khu-tako
this case-Dat-Top I-Nom navel-Acc belly-than more be.big-Cmp
mit-nun-ta.
believe-Pres-Dec
'In this case, I believe the subset is larger than the main thing.'

(591) a. Nay-ka Swuni-**ka** son-i khu-tako mit-ess-ta.
I-Nom Swuni-Nom hand-Nom be.big-Cmp believe-Pst-Dec
'I believed Swuni to be generous.'

b. *Nay-ka Swuni-**lul** son-**i** khu-tako mit-ess-ta.
I-Nom Swuni-Acc hand-Nom be.big-Cmp believe-Pst-Dec
'I believed Swuni to be generous.'

c. *Swuni-**nun** nay-ka son-**ul** khu-tako mit-ess-ta.
Swuni-Top I-Nom hand-Acc be.big-Cmp believe-Pst-Dec
'I believed Swuni to be generous.'

The most straightforward explanation of the ungrammaticality of these sentences is that the subject of the sentential idiom does not involve an object with a real world referent suitable for playing the role assigned to it by the higher verb's relation. Thus, Korean Subject-to-Object Raising would fail to yield a way of producing arguments which belong to a higher clause syntactically without bearing any semantic role in that clause.

To conclude our look at the semantically-based account of passive, we find direct counterevidence from passives of lexical causatives, and no supporting evidence, and perhaps counterevidence, from Subject-to-Object Raising. Since we have no independent motivation for this account to weigh against its problems, there appears to be no grounds at all for adopting it. Thus, the dual passive analysis cannot rely on an easy semantic solution to the contrasts in passive between lexical and periphrastic causatives.

5.4.2 Object Honorification

Object Honorification is another phenomenon which several accounts have used as evidence that the causative acts differently from other multiple object verbs. However, the data on those multiple object verbs does not actually support the basic contention, and thus causatives are not actually unexplained under my analysis or a Clause Union analysis.

In a paper arguing against a monoclausal analysis of Korean causatives, E. Cho (1987) argues that causatives have different behavior with respect to object honorification than other multiple object verbs. Cho cites Kuno and Y. Kim (1985) for their account of object honorification, and their observation about the distinct behavior of causatives. I will present the arguments of these two papers, and then go on to show how causatives do not in fact differ from other verbs in the manner claimed, and how object honorification is not a reliable test for the grammatical relation of object.

5.4.2.1 The Object Honorification Construction

What Kuno and Kim (1985) call object honorification is the construction in which the honorific benefactive auxiliary verb *tuli-ta* follows a main verb, as seen in (592). In this sentence, the honoree is the indirect object *sensayngnim-kkey* 'teacher-Dat'.

(592) Nay-ka **sensayngnim-kkey** emeni-lul sokay.ha-y
I-Top teacher-Dat mother-Acc introduce-Pst-Dec
tuli-ess-ta
Hon.give-Pst-Dec
'I introduced my mother to the *teacher*.'

As indicated in the gloss in (592), the meaning of *tuli-ta* when it is used without another verb is 'give (to an honored person)'. This verb contrasts with a non-honorific version *cwu-ta*, which means 'give (to a non-honored person)'. Examples are given below in (593).

(593) a. Nay-ka sensayngim-kkey chayk-ul tuli-ess-ta
I-Nom teacher-HDat book-Acc Hon.give-Pst-Dec
'I gave the book to the teacher.'

b. Nay-ka Swuni-eykey chayk-ul cwu-ess-ta
I-Nom Swuni-Dat book-Acc give-Pst-Dec
'I gave Swuni a book.'

Anomalous sentences result from using a verb which does not honor a person normally due respect, such as a teacher in (594a), or using a verb which honors a person unexpectedly, such as someone you call by a first name as in (594b).

(594) a. #Nay-ka sensayngim-kkey chayk-ul cwu-ess-ta
I-Nom teacher-HDat book-Acc give-Pst-Dec
'I gave the book to the teacher.'

b. #Nay-ka Swuni-eykey chayk-ul tuli-ess-ta
I-Nom Swuni-Dat book-Acc Hon.give-Pst-Dec
'I gave Swuni a book.'

In HPSG, the lexical entries for the 'give' verbs *tuli-ta* and *cwu-ta* will reflect an analysis similar to that of subject honorification, as in E. Han (1991) and discussed earlier. These entries are given below, with the difference in honorification reflected in the difference of the positive or negative polarity of the "social-superiority" relation in the CONTEXT information.

(595)

$$
\begin{bmatrix}
\text{PHON} & \langle \text{ tuli-ess-ta } \rangle \\
\text{CAT} & \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \textit{verb} \end{bmatrix} \\ \text{SUBJ} & \left\langle \text{NP}_{\boxed{1}} \right\rangle \\ \text{COMPS} & \left\langle \text{NP}_{\boxed{2}},\ \text{NP}_{\boxed{3}} \right\rangle \end{bmatrix} \\
\text{CONTENT} & \begin{bmatrix} \text{RELN give} \\ \text{GIVER } \boxed{1} \\ \text{GIVEN } \boxed{2} \\ \text{GIVEE } \boxed{3} \end{bmatrix} \\
\text{CONTEXT} & \begin{bmatrix} \text{C-INDICES} & \begin{bmatrix} \text{SPEAKER } \boxed{4} \\ \text{ADDRESSEE } \boxed{5} \end{bmatrix} \\ \text{BACKGROUND} & \begin{bmatrix} \text{RELN soc-sup} \\ \text{SUPERIOR } \boxed{3} \\ \text{REFERENCE-PT } \boxed{4} \vee \boxed{5} \\ \text{POLARITY } 1 \end{bmatrix} \end{bmatrix}
\end{bmatrix}
$$

(596)

$$
\left[\begin{array}{ll}
\text{PHON} & \langle \text{ cwu-ess-ta } \rangle \\
\text{CAT} & \left[\begin{array}{ll}
\text{HEAD} & \left[\textit{verb}\right] \\
\text{SUBJ} & \left\langle \text{NP}_{\boxed{1}} \right\rangle \\
\text{COMPS} & \left\langle \text{NP}_{\boxed{2}},\ \text{NP}_{\boxed{3}} \right\rangle
\end{array}\right] \\
\text{CONTENT} & \left[\begin{array}{l}
\text{RELN give} \\
\text{GIVER } \boxed{1} \\
\text{GIVEN } \boxed{2} \\
\text{GIVEE } \boxed{3}
\end{array}\right] \\
\text{CONTEXT} & \left[\begin{array}{ll}
\text{C-INDICES} & \left[\begin{array}{l}
\text{SPEAKER } \boxed{4} \\
\text{ADDRESSEE } \boxed{5}
\end{array}\right] \\
\text{BACKGROUND} & \left[\begin{array}{l}
\text{RELN soc-sup} \\
\text{SUPERIOR } \boxed{3} \\
\text{REFERENCE-PT } \boxed{4} \vee \boxed{5} \\
\text{POLARITY } 0
\end{array}\right]
\end{array}\right]
\end{array}\right]
$$

The analysis of the main verbs *tuli-ta* and *cwu-ta* involves a straightforward identification of the referent of the NP bearing a particular grammatical relation, specifically the indirect object, with the superior position in social structure. Kuno and Kim's (1985) analysis of object honorification attempts to have a similar straightforward identification of the honored person through grammatical relations when *tuli-ta* is used as an auxiliary with another verb. Kuno and Kim claim that in this case, *tuli-ta* may honor either the indirect object or the direct object of the verb it follows.

Because Kuno and Kim (1985) are focussing on honorification constructions in Korean, they call the phenomena we consider here "nonsubject honorification". Cho adjusts the term slightly to "object honorification". However, it is important to note that when *tuli-ta* is added to another verb, it does not simply add honorification information. In keeping with its original basic meaning of 'give (to an honored person)', *tuli-ta* as an auxiliary verb indicates that the action of the main verb is performed as a benefit for an honored person. Although Cho does not discuss it, Kuno and Kim also refer to the corresponding construction describing an action which is performed to benefit a non-honored person, where the auxiliary verb used is *cwu-ta* instead of *tuli-ta*. Thus "object honorification" with *tuli-ta* occurs in addition to information that the honored object has received a benefit from the action denoted by the main verb. The linguistic interest in these constructions for our purposes comes from the possibility of substituting NP's with honorable or non-honorable referents to see precisely which NP's are identified with social superiority information provided by the verb. For ease of reference, honored objects are italicized in the examples in this section.

With this background on the object honorification constructions, we can now examine the argument that this phenomenon provides evidence against a monoclausal analysis of causatives. Kuno and Kim (1985) claim that when *tuli-ta* is used as an auxiliary, the sentence produced can be ambiguous between honoring a direct object or an indirect object. Cho cites as evidence for this point Kuno and Kim's example in (597), where *tuli-ta* is claimed to honor either *I-sensayngnim-kkey* 'Teacher Lee-Dat' or *uysa-sensayng-nim-ul* 'doctor-teacher-Hon-Acc'.

(597) Na-nun *I-sensayng-nim-kkey* uysa-sensayng-nim-ul mosi-e
I-Top Lee-teacher-Hon-Dat doctor-teacher-Hon-Acc Hon.take-Cmp
tuli-ess-ta
give-Pst-Dec
'I took the doctor to *Teacher Lee* (for the doctor's/the teacher's benefit).'

However, this example is misleading.[35] The main verb in (597) is *mosi-e* 'take (an honored person)', which is itself a verb specifying that its direct object is honored. Thus, *uysa-sensayngnim-ul* 'doctor-teacher-Acc' will be honored in this example because of the main verb, without regard to the auxiliary *tuli-ta*. Every speaker I consulted found that both the teacher and the doctor were honored in this example, but that only the teacher was interpreted as the beneficiary of the action described by the main verb *mosi-ta* 'take'. Thus, E. Cho (1987) fails to provide the crucial evidence that object honorification with *tuli-ta* can have two possible readings when there are two objects.

[35] I am indebted to Young-mee Yu Cho for this observation.

Kuno and Kim (1985) do provide the necessary examples to make the point that *tuli-ta* could honor either the indirect object, or direct object, but Kuno and Kim's example of the benefactive auxiliary's honorification level corresponding to the direct object is not accepted by my consultants, as shown in (598), which was cited as grammatical in Kuno and Kim (1985).

(598)	*Na-nun	I-sensayng-nim-kkey	kanhowen-ul	teyli-eta	cwu-ess-ta
	I-Top	Lee-teacher-Hon-HDat	nurse-Acc	Hon.take-Cmp	give-Pst-Dec

'I took a nurse to Teacher Lee (for the nurse's benefit).'

Kuno and Kim treat Teacher Lee as an honored person, as indicated by the honorific dative marker *-kkey*, while treating the nurse as non-honored, as indicated by the choice of the non-honorific verb *teyli-eta* 'take' instead of the honorific verb *mosi-eta* 'take'. Thus, the non-honorific benefactive auxiliary *cwu-ess-ta* is intended to select the direct object, i.e. the nurse, as the beneficiary, rather than the indirect object, i.e. Teacher Lee. My consultants do not accept this possibility, finding that *cwu-ta* and *tuli-ta* definitely select the indirect object over the direct object as beneficiary, with no ambiguity.

At this point, it appears that Kuno and Kim's (1985) position on which objects may be honored by *tuli-ta*, a position also adopted by E. Cho (1987), is fundamentally untenable for Korean as spoken by my consultants. In fact, the traditional assumption has been that *tuli-ta* as an auxiliary honors only the indirect object (B. Park 1991). This assumption fits the multiple object sentences just discussed, but does not extend to the full range of data. If there is no indirect object, *tuli-ta* may take the main verb's direct object as an honored beneficiary, as in (599), or it may add a beneficiary which does not bear any role from the main verb, as shown in the examples in (600), taken from E. Baek (1984:51).

(599)	Apeci-lul	cap-a	tuli-ess-ta
	father-Acc	hold-Cmp	give-Pst-Dec

'I held onto father (for his benefit).'

(600) a. Manhi mek-e tuli-ess-ta
a.lot eat-Cmp give-Pst-Dec
'I ate a lot (for them).'

b. Phathi-ey ka tuli-ess-ta
party-Dat go-Cmp give-Pst-Dec
'I went to the party (for them).'

The NP which will be the target of object honorification with *tuli-ta* seems fundamentally to be related to beneficiary selection, and beneficiary selection does not appear to be strictly syntactically defined. There is a similar tradition in Japanese linguistics of using beneficiary selection as a syntactic test of objecthood, and Matsumoto (1993) argues that object honorification in Japanese must instead be understood in pragmatic terms. Her arguments appear to apply to Korean as well, so that we cannot rely on object honorification for information about grammatical relations.

5.4.2.2 Object Honorification with *tuli-ta* and Causatives

Having determined that Kuno and Kim's (1985) account of object honorification in Korean is not tenable, we can now examine the claims made by Kuno and Kim and by E. Cho (1987) regarding periphrastic causatives. The data which Cho selects from Kuno and Kim as problematic consists of the following example, illustrating that when *tuli-ta* follows a causative verb, only the causee is honored, and not any object of the lower verb, as in (601).

(601) Nay-ka Cho-sensayng-eykey I-sensayng-nim-ul yek-ulo mosi-key
I-Nom Cho-teacher-Dat Lee-teacher-Hon-Acc station-to take-Adv
ha-y tuli-ess-ta
do-Cmp give-Pst-Dec
'I made Teacher Cho take Teacher Lee to the station.' (honors Teacher Cho)

Because they are proceeding on the assumption that either the indirect object or the direct object should be honored, both accounts present the example in (601) as a problem. Kuno and Kim (1985) explain the non-ambiguous character of the sentence by appealing to Langacker's Chain of Command Principle, which relies on the hierarchical constituent structure available before verb raising in the causative to limit object honorification to the closer eligible object. E. Cho (1987) explains this example by appealing to the clause-bounded nature of object honorification, and arguing for causatives which are biclausal at all levels.

Because we have seen that direct objects are not ordinarily honored by *tuli-ta* in multiple object sentences, (601) is no longer a surprising, exceptional sentence. Still, it is worth considering whether these explanations, based on either "deep" or surface clause structure, have any validity with respect to the causative. A natural comparison, which neither account makes, is with the lexical causative. The lexical causative would not be taken to have a biclausal surface structure in any account, nor would it be given a biclausal deep structure in most accounts, due to its lack of subject honorification and plural copy properties for the causee, as discussed in earlier sections. Thus, if the lexical causative permitted either its causee or its direct object to be honored by *tuli-ta*, while the periphrastic causative did not, we might conclude that clause structure did indeed play a role in excluding the honorification of the direct object in (601).

The facts, however, show that the lexical causatives have exactly the same behavior as periphrastic causatives with respect to benefactive auxiliaries, without evidence of biclausal constituent structure at any level. Here also, only the causee may be the honored beneficiary, not the lower object, as in (602). If the causee is not a socially appropriate honoree, the sentence will be ungrammatical, as in (603).

(602) Kanhowen-un emeni-kkey pyeng-ey kelli-n ai-lul anki-e
nurse-Top mother-HDat sick child-Acc make.hold-Cmp
tuli-ess-ta
give-Pst-Dec
'The nurse placed the sick child in its mother's arms.'

(603) *Kanhowen-un na-hanthey pyeng-ey kelli-n halmeni-lul
nurse-Top I-Dat sick grandmother-Acc
anki-e tuli-ess-ta
make.hold-Cmp give-Pst-Dec
'The nurse placed my sick grandmother in my arms.'

Thus, the selection of an honored beneficiary of *tuli-ta* in periphrastic causatives does not appear to have any relation to clause structure, and in fact, is completely in line with other multiple object verbs including lexical causatives.[36]

We might expect that the nested semantic structure of the causative and the semantic nature of beneficiary selection would have some interaction, making semantic roles in the lower verb's relation less visible to the benefactive auxiliary than the semantic roles in the higher semantic relation of the causative verb. However, if the pragmatic principles that Matsumoto (1993) outlines for Japanese also hold for Korean, we cannot expect to see any rigidly defined principle of beneficiary selection in the semantics, just as we could not find such a principle in the syntax of grammatical relations. This reliance on pragmatics means that I will not attempt to provide an HPSG analysis of object honorification, nor will I provide a lexical entry for the auxiliary *tuli-ta* indicating which argument it identifies as its honored beneficiary, and how it combines with the periphrastic and lexical causatives.

5.4.3 Resumptive Pronouns and Quantifier Float

As a potential overt representation of the usually empty lower subject position, the occurrence of a resumptive pronoun or floated quantifier as the causee in a periphrastic causative has been a matter of interest in the literature on Korean. The presence of a nominative element coreferent with the causee in these kinds of sentences has been taken to indicate that sentences without any phonological nominative element should still be considered as having a null lower subject.

[36]The fact that E. Cho does not include the argument based on object honorification in his (1988) dissertation, while he does include the other arguments from his (1987) article against monoclausal causatives, may indicate that he recognized the problems with his (1987) argument.

In this section, I will review the basic data used in previous accounts, then examine two kinds of evidence concerning the subjecthood status of these elements. After concluding that these are not lower subjects, and hence do not provide evidence for a biclausal analysis of the periphrastic causative, I present an analysis in HPSG for the occurrence of nominative case on these items, in keeping with my Case Principles, and demonstrate how this analysis is confirmed by new data involving accusative rather than nominative items coreferent with the causee.

5.4.3.1 Previous Data on Potential Lower Subjects

Most of the previous literature on this subject has concentrated specifically on resumptive pronouns, so I will review those facts first, then move on to the data concerning floated quantifiers.

5.4.3.1.1 Resumptive Pronouns Patterson (1974), to my knowledge, first introduced these facts into the literature on Korean causatives. In her account, she presented the data in (604) to show that both dative and accusative causees could co-occur with a coreferent nominative-marked pronoun. The presumable explanation is that dative and accusative causees are in the matrix clause, thus allowing a pronominal lower subject, boldfaced below, to appear in the lower clause.

(604) a. Nay-ka Yengswu-eykey **ku-ka** kwuk-ul kkwuli-key hay-ss-ta
I-Nom Yengswu-Dat he-Nom soup-Acc boil-Adv do-Pst-Dec
'I caused Yengswu to boil the soup.'

b. Nay-ka Yengswu-lul **ku-ka** kwuk-ul kkwuli-key hay-ss-ta
I-Nom Yengswu-Acc he-Nom soup-Acc boil-Adv do-Pst-Dec
'I caused Yengswu to boil the soup.'

Patterson argues that nominative causees are in the lower clause, as shown by their contrasting behavior. Her example illustrating this point is given below.

(605) *Nay-ka Yengswu-ka **ku-ka** kwuk-ul kkwuli-key hay-ss-ta
I-Nom Yengswu-Nom he-Nom soup-Acc boil-Adv do-Pst-Dec
'I caused Yengswu to boil the soup.'

The fact that the nominative causee sentences do not allow a second pronominal subject within the same clause would agree with the usual facts in simple sentences, where an additional pronoun filling the same role is not permitted.

(606) *Yengswu-ka **ku-ka** kwuk-ul kkwuli-ess-ta
Yengswu-Nom he-Nom soup-Acc boil-Pst-Dec
'Yengswu boiled the soup.'

Other accounts after Patterson's (Y. Kim 1990a:164, Y. Kang 1986:60, and Gerdts 1986:167, fn. 40, 1990:240, fn. 26) have disagreed with the judgment on (604b), and claimed that only dative causees, and not accusative causees, could co-occur with the coreferent nominative pronoun. Y. Kim (1990a) uses this pattern of judgments to argue that the dative causee controls either a null or an overt lower subject from a matrix object position, while the accusative causee, like the nominative causee, occurs in the lower clause subject position and thus cannot occur with an additional lower subject. While not specifically dealing with causatives, Y. S. Choi (1988:152–154) takes a theoretical position similar to Kim's. Following Saito's (1985) claims for Japanese, Choi argues that resumptive pronouns are possible as lower subjects in equi constructions, but not raising constructions.

For Y. Kang (1986), the impossibility of a nominative lower subject pronoun occurring with an accusative causee is evidence that the lower verb forms part of a verbal complex, and is no longer able to assign nominative case. Gerdts (1986, 1990) writes that the acceptability of a nominative lower subject along with an accusative causee, as described by Patterson, would provide evidence of Equi sentences in Korean with accusative matrix arguments controlling lower subjects, but that she has not found any speakers who accept Patterson's example. Gerdts also cautions that the acceptability of the example does not in itself establish the subjecthood of the nominative item, instead of its being an emphatic pronoun modifying the causee.

O'Grady (1991:193–195) cites the suggestions of Donna Gerdts and Sung-Ock Shin (p.c. to O'Grady) as the basis of his position that the lower subject pronouns in these examples are emphatic pronouns which do not fill a term position. O'Grady treats the resumptive pronouns as acceptable with both accusative and dative causees, but not with the nominative causee where they would occur within the same clause as the true lower subject.

Though not referring to causative data, K. Hong (1991b:37, fn. 26) also exemplifies the viewpoint that resumptive pronouns should not be seen as filling argument positions in the same way as any other argument. She argues against the interpretation of emphatic pronouns or reflexives as saturating an embedded *-myense* clause, in sentences like the following.

(607) [CAKI-ka ka-ss-*umyense(to)*] Minswu-nun anilako cwucang.ha-n-ta
self-nom go-past-although Minswu-Top it's.not.the.case claim-Pres-Dec
'Although he himself went there, Minswu claims that it's not the case.'

E. Cho (1987, 1988) agrees with Patterson in judgments and analysis, though he notes (1987:24, fn. 6) the disagreement among speakers over these judgments. There is general agreement in the literature that (604a), with a dative causee, is grammatical and that (605), with a nominative causee, is ungrammatical. In my data collection, I have found speakers whose judgments fall into each of these categories, as well as speakers who do not accept the nominative pronoun co-occurring with causees of any case-marking.

5.4.3.1.2 Floated Quantifiers Floated quantifiers bearing nominative case marking and coreferent with the causee are more generally acceptable than the resumptive pronouns in causative sentences, and also have been used to support a lower subject position.

Quantifiers in Korean may appear within the NP which they quantify, as shown in (608a),[37] or "floated" away from this NP, i.e. appearing sister to the NP and not

[37] A Korean consultant finds this example ungrammatical, although a variant of it without the *-nim* honorific was cited as grammatical in Gerdts (1985, 1987), and a parallel example was cited as grammatical in K. Hong (1990b). This consultant finds numerical quantifiers such as *sey* ungrammatical directly preceding a noun. The closest grammatical possibility for this consultant occurs if a noun is homophonous with a numerical classifier used to describe other nouns, such as the word *salam* 'person', which can occur as a noun in its own right, or as a classifier which occurs with a numerical quantifier to quantify nouns, as seen in (i).

necessarily adjacent to it.[38] Floated quantifiers may optionally bear case marking, as seen in the acceptability of (608b) without case marking on the quantifier, as well as the acceptability of (608c) with this case marking.

(608) a. Kyoswu-nim-i **sey** chayk-ul ss-ess-ta
professor-Hon-Nom three book-Acc write-Pst-Dec
'The professor wrote three books.'

b. Kyoswu-nim-i chayk-ul **seys** ss-ess-ta
professor-Hon-Nom book-Acc three write-Pst-Dec
'The professor wrote three books.'

c. Kyoswu-nim-i chayk-ul **seys-ul** ss-ess-ta
professor-Hon-Nom book-Acc three-Acc write-Pst-Dec
'The professor wrote three books.'

In general, the case marking on a floated quantifier matches the case on the NP which it quantifies. In complex sentences involving raising or topic-marking, the quantifier's case may differ from its antecedent's case, illustrating reliance on the

(i) a. Salam-i ttena-ss-ta
person-Nom leave-Pst-Dec
'The person left.'

b. Haksayng-i sey-salam-i ttena-ss-ta
student-Nom three-person-Nom leave-Pst-Dec
'Three students left.'

Due to this homophony, a parallel form to that in (608a), *sey salam-ul* 'three person-Acc', is grammatical for this consultant, as are the other variants, *salam-ul seys* 'person-Acc three' and *salam-ul seys-ul* 'person-Acc three-Acc'. This difference in judgments will not affect the argument of this section.

[38] As explained by Gerdts (1985, 1987), Korean also has internal quantifier float, in which the quantifier appears in a non-canonical order within the NP, as seen in (i) below.

(i) Kyoswu-nim-i [chayk **seys**-ul] ss-ess-ta
professor-Hon-Nom book three-Acc write-Pst-Dec
'The professor wrote three books.'

Internal quantifier float is not relevant to the question of the causative constituent structure, so I will discuss external quantifier float under the simpler name "quantifier float".

grammatical relation of the floated quantifier's antecedent rather than its surface case marking in Gerdts (1985, 1987)'s account.

The relevant data for the question of the constituent structure of the causatives also appears in Gerdts (1985, 1987). A floated quantifier which modifies a dative causee can bear nominative case, as seen in (609). In Gerdts' account, the nominative case reflects the occurrence of quantifier float prior to the Clause Union which revalued the nominative lower subject so that it became a dative matrix object. This kind of analysis only requires biclausality at the original stratum, and not at surface structure, to explain (609). In an account where such relation changes cannot occur in syntactic representation, the nominative quantifier could be taken to be part of a lower clause, modifying an unexpressed lower subject.

(609)	Nay-ka	haksayng-eykey	**seys-i**	ttena-key	hay-ss-ta
	I-Nom	student-Dat	three-Nom	leave-Adv	do-Pst-Dec
	'I made three students leave.'				

The corresponding sentence with an accusative causee, given in (610), is also grammatical.

(610)	Nay-ka	haksayng-ul	**seys-i**	ttena-key	hay-ss-ta
	I-Nom	student-Acc	three-Nom	leave-Adv	do-Pst-Dec
	'I made three students leave.'				

The nominative case on the floated quantifier coreferent with the causee, like the nominative resumptive pronouns of the previous section, poses a challenge to a monoclausal account of these causatives which has no lower subject position to hold these nominative elements. Thus, it is important to consider evidence concerning the subjecthood status of these elements in order to incorporate the data appropriately into our analysis.

5.4.3.2 Data Against Lower Subjecthood

The evidence we will examine concerning the subjecthood of nominative resumptive pronouns and floated quantifiers coreferent with causees comes from two areas: the honorific nominative *-kkeyse* case marking, and their scrambling characteristics.

5.4.3.2.1 -kkeyse Marking As discussed in Section 5.2.1, the honorific nominative case marker *-kkeyse* occurs only on subjects in Korean, and not on focus phrases, nominative objects, or other elements which can bear the plain nominative case markers *-i* and *-ka*. We can thus use *-kkeyse* marking to test the subjecthood of the resumptive pronouns and floated quantifiers bearing nominative case and coreferent with the causee in causative sentences. If these elements are truly lower subjects, they will be able to bear *-kkeyse*, but if they are not, *-kkeyse* marking will not be possible on them.

Below I examine resumptive pronouns and floated quantifiers with dative and accusative causees. In every example, *-kkeyse* marking is not possible on the item in question. Consequently, neither nominative resumptive pronouns nor nominative floated quantifiers appear to be subjects of a lower clause.

(611) involves causatives with a dative causee suitable for honorification, as indicated by its honorific dative case marker *-kkey*, and the honorific reflexive pronoun *tangsin*. Because several of my consultants find sentences with reflexive pronouns more acceptable in this position than non-reflexive pronouns, I use the reflexive *tangsin* instead of the non-reflexive honorific pronoun *ku pwun* 'that (honored) person'.

The sentence with the plain nominative marker *-i* on the reflexive pronoun coreferent with the causee in (611a) is more or less acceptable, while the sentence with the honorific nominative marker *-kkeyse* on *tangsin* is generally unacceptable.[39] This indicates that *tangsin* is not functioning as a subject of a lower clause.

(611) a. ?Na-nun sensayngnim-kkey **tangsin-i** mwuncey-lul selmyeng.ha-si-key
I-Top teacher-HDat Hon.self-Nom problem-Acc explain-Hon-Adv
hay-ss-ta
do-Pst-Dec
'I had the teacher explain the problem.'

b. ?*Na-nun sensayngnim-kkey **tangsin-kkeyse** mwuncey-lul
I-Top teacher-HDat Hon.self-HNom problem-Acc

[39]Some speakers find both sentences marginally unacceptable.

selmyeng.ha-si-key hay-ss-ta
explain-Hon-Adv do-Pst-Dec
'I had the teacher explain the problem.'

In (612) with an accusative causee instead of a dative causee, we find completely parallel results.[40] The plain nominative case marking on the reflexive pronoun in (612) is basically acceptable, while the honorific nominative case marking with *-kkeyse* makes the sentence much less acceptable.

(612) a. ?Na-nun sensayngnim-<u>ul</u> **tangsin-i** mwuncey-lul selmyeng.ha-si-key
I-Top teacher-Acc Hon.self-Nom problem-Acc explain-Hon-Adv
hay-ss-ta
do-Pst-Dec
'I had the teacher explain the problem.'

b. ?*Na-nun sensayngnim-<u>ul</u> **tangsin-kkeyse** mwuncey-lul
I-Top teacher-Acc Hon.self-HNom problem-Acc
selmyeng.ha-si-key hay-ss-ta
explain-Hon-Adv do-Pst-Dec
'I had the teacher explain the problem.'

Quantifier float sentences yield the same conclusions on the question of subjecthood for the nominative lower clause element. In (613), we examine causatives with an honorific dative causee and the honorific quantifier phrase *twu-pwun* as a nominative element. (613a) and (613b) give the quantifier phrase with the classifier *pwun* '(honored) person', while (613c) gives the plain numeric version of the quantifier phrase *twul* 'two'.

(613a) with a plain nominative marker on the quantifier is grammatical, while the corresponding (613b) with the honorific nominative marker *-kkeyse* on the floated

[40] One consultant finds (612a) less acceptable than (612b). This direction of contrast in judgments would not be expected under any account; both sentences would be expected to be equally acceptable under the hypothesis that *tangsin* is a lower subject. The preference for *-kkeyse* marking might come about from a preference for the semantically richer *-kkeyse* on a resumptive pronoun which does not otherwise contribute much information.

quantifier is quite unacceptable. (613c) with *-kkeyse* on the plain numeric quantifier is also unacceptable, demonstrating that the presence or absence of a classifier in the quantifier phrase makes no difference in the unacceptability of *-kkeyse* on these non-subject arguments.

(613) a. Na-nun sensayngnim-tul-<u>kkey</u> **twu-pwun-i** mwuncey-lul
I-Top teacher-Plur-HDat two-Hon.person-Nom problem-Acc
selmyeng.ha-si-key hay-ss-ta
explain-Hon-Adv do-Pst-Dec
'I had two teachers explain the problem.'

b. ?*Na-nun sensayngnim-tul-<u>kkey</u> **twu-pwun-kkeyse** mwuncey-lul
I-Top teacher-Plur-HDat two-Hon.person-HNom problem-Acc
selmyeng.ha-si-key hay-ss-ta
explain-Hon-Adv do-Pst-Dec
'I had two teachers explain the problem.'

c. *Na-nun sensayngnim-tul-<u>kkey</u> **twul-kkeyse** mwuncey-lul
I-Top teacher-Plur-HDat two-HNom problem-Acc
selmyeng.ha-si-key hay-ss-ta
explain-Hon-Adv do-Pst-Dec
'I had two teachers explain the problem.'

Finally, quantifier float causative sentences with accusative causees behave in the same fashion as the other examples in this section. (614a) with the plain nominative marker on the floated quantifier is basically acceptable, while the honorific nominative marker *-kkeyse* is unacceptable on either the floated quantifier with the classifier in (614b) or the floated quantifier in plain numeric form in (614c).

(614) a. ?Na-nun sensayngnim-tul-<u>ul</u> **twu-pwun-i** mwuncey-lul
I-Top teacher-Plur-Acc two-Hon.person-Nom problem-Acc
selmyeng.ha-si-key hay-ss-ta
explain-Hon-Adv do-Pst-Dec
'I had two teachers explain the problem.'

b. *Na-nun sensayngnim-tul-<u>ul</u> **twu-pwun-kkeyse** mwuncey-lul
I-Top teacher-Plur-Acc two-Hon.person-HNom problem-Acc
selmyeng.ha-si-key hay-ss-ta
explain-Hon-Adv do-Pst-Dec
'I had two teachers explain the problem.'

c. *Na-nun sensayngnim-tul-<u>ul</u> **twul-kkeyse** mwuncey-lul
I-Top teacher-Plur-Acc two-HNom problem-Acc
selmyeng.ha-si-key hay-ss-ta
explain-Hon-Adv do-Pst-Dec
'I had two teachers explain the problem.'

Thus, given the restriction of *-kkeyse* to appearing on subjects only, the fact that *-kkeyse* is impossible on nominative pronouns and nominative floated quantifiers gives us evidence that these nominative phrases are not subjects.

5.4.3.2.2 Scrambling As we saw in Chapter 2, scrambling can give us evidence of clause structure, because elements of a clause are generally restricted to appearing within that clause. Finding elements of one supposed clause interspersed with elements of another clause gives us reason to doubt the boundary between those clauses. For examining the possibility that the nominative elements in these sentences occur in a different, lower clause from the causer or any other matrix elements, we can look to see if any matrix elements can appear between the nominative element and the lower verb.

Although most speakers I consulted rejected the following sentences, some speakers do accept scrambled sentences where items which would belong to the matrix clause occur between the pronominal lower subject and the lower verb.

(615a) gives a sentence in which the causer *na-nun* 'I-Top' occurs between the pronominal lower subject *ku-ka* 'he-Nom' and the lower verb *kongpwu.ha-key* 'study. (615a) gives a sentence with a matrix adverb, *caknyen-pwuthe* 'since last year', in the same position. Both of these sentences include a dative causee, since the judgments on additional lower subject pronominals in causatives with dative causees have not been disputed in the literature.

(615) a. %Ku pwun-eykey <u>ku-ka</u> **na-nun** o-key hay-ss-ta
That person-Dat he-Nom I-Top come-Adv do-Pst-Dec
'I made him come'.

b. %Na-nun kupwun-eykey <u>ku-ka</u> **caknyen-pwuthe** kongpwu.ha-key
I-Top thatperson-Dat he-Nom last.year-since study-Adv
hay-ss-ta
do-Pst-Dec
'Since last year I made him study.

Thus, while not accepted by all speakers, scrambled sentences add another dimension on which the nominative lower elements do not act like subjects of a separate lower clause.

5.4.3.3 Analysis of Lower Nominative Elements

If the nominative resumptive pronouns and nominative floated quantifiers coreferent with the causee are not subjects of a lower clause, then we need to provide an analysis for these elements, most importantly including an account for the fact that they bear nominative case. In this section, I will provide an HPSG analysis of these elements as modifiers of the unexpressed lower subject. In addition, I will show that nominative case occurs on the quantifiers not as a consequence of subjecthood but rather as a reflection of the underspecified nature of grammatical case.

5.4.3.3.1 Nominative Resumptive Pronouns I follow O'Grady (1991:193–195) in treating the nominative pronouns in sentences such as (604) as emphatic elements which do not fill a subcategorized slot. In my analysis, they are a form of modifier, and thus they will be added lexically to the COMPS list by the Adjunct Addition Lexical Rule. The nominative case on these resumptive pronouns is semantically-based and reflects the semantic role of the referent with respect to the verb it modifies, a grammaticalization of the association of subjects and agenthood.

5.4.3.3.2 Nominative Quantifiers I will spend more time discussing the appearance of nominative floated quantifiers to indicate how my analysis of these items fits within a larger analysis of case marking in quantifier float, and to explore predictions of my analysis.

My analysis of floating quantifiers is that they are added to a verb's argument structure by an optional lexical rule. My Floated Quantifier Addition Lexical Rule is given below. It describes a sign with an NP in any position on the COMPS list of a lexical item, as indicated by the lists $\boxed{1}$ and $\boxed{2}$ which occur before and after the NP on the COMPS list. Either $\boxed{1}$ or $\boxed{2}$ could be the empty list, and thus leave the NP in question as the most oblique NP, the least oblique NP or the only NP on the COMPS list. Similarly, either $\boxed{1}$ or $\boxed{2}$ could contain other elements, thus describing an NP in the middle of the COMPS list. The rule adds a floating quantifier to the COMPS list, as indicated by the element "Q".[41]

(616) **Floated Quantifier Addition Lexical Rule**

$$\left[\text{COMPS } \boxed{1} \oplus \langle \text{NP} \rangle \oplus \boxed{2}\right]$$

$$\Longrightarrow$$

$$\left[\text{COMPS } \boxed{1} \oplus \left\langle \text{NP}\left[\text{CASE } \boxed{3}\right],\ \text{Q}\left[\text{CASE } \boxed{3}\right] \right\rangle \oplus \boxed{2}\right]$$

The verb's lexical representation distinguishes between its arguments with grammatical case and its arguments with semantic case. For the stricter dialects in which floated quantifiers only occur modifying nominative and accusative arguments, as described by Gerdts (1985, 1987), the lexical rule could specify that it adds quantifiers only to arguments with grammatical case. However, my version of this lexical rule adds floated quantifiers modifying arguments of any case, in line with the dialect

[41]For clarity in presentation, I am omitting the details of how the quantifier restricts the number of the referential index of the NP.

described by K. Hong (1990b).

In either version, the rule, simultaneously with adding the floated quantifier to the COMPS list, identifies the case of the quantifier with the case of its quantified argument.[42] As a result, quantifiers of NP's with grammatical case have a grammatical case assignment lexically. Parallel to NP's with grammatical case, quantifiers with grammatical case do not realize the distinction between nominative and accusative case until the quantified noun is satisfied in syntax.

The relevance of floated quantifiers to my analysis of Korean causatives is the need to account for sentences like (609), repeated here as (617).

(617) Nay-ka haksayng-<u>eykey</u> **seys-i** ttena-key hay-ss-ta
I-Nom student-<u>Dat</u> three-Nom leave-Adv do-Pst-Dec
'I made three students leave.'

The nominative case *-i* on the floated quantifier *seys* 'three' in (617) appears to reflect the nominative case that a lower subject would bear, rather than the dative case of the dative causee *haksayng-eykey* 'student-Dat'. In my analysis, we can capture this sense of reliance on a lower subject's case without needing to postulate the existence of the lower subject itself in the constituent structure.

The quantifier *seys* 'three' was added to the COMPS list in the lexical entry for the verb *ttena-key* 'leave', and at that point it was specified with CASE [*gram*], matching the case specification on the subject of *ttena-key*. However, quantifiers cannot realize their CASE [*gram*] specifications through the ordinary Case Principles which specify nominative or accusative case for NP's. If quantifiers were to follow the same Case Principles, nominative quantifiers would have to occur on the SUBJ list. However, occurring on the SUBJ list would make it impossible for a nominative floated quantifier to ever occur after the subject and other non-subject NP's, because the subject occurs finally before VP, according to the Subject-Final LP Rule, from Section 3.2.1, and occurring after a subject as well as a following non-subject NP

[42]See Miller and Sag (1995, 1996) for another example of agreement of floating quantifiers with their quantified NP analyzed by a lexical rule in HPSG. Miller and Sag's L-Tous Lexical Rule ensures that a French floating quantifier agrees in number and gender with a quantified accusative or dative object realized as a pronominal affix or a gap in a long distance dependency.

would place the floated quantifier within VP, which would mean it would need to be on the COMPS list. Such sentences do occur, as seen in Gerdts's (1985, 1987) example below, where the nominative floated quantifier *seys-i* 'three-Nom' occurs after the subject and after the following non-subject NP *kikye-ey* 'machine-Loc'.

(618) Ku cikkong-i sonkalak-i kikye-ey **seys-i** cal-li-ess-ta
that worker-Nom finger-Nom machine-Loc three-Nom cut-Pass-Pst-Dec
'Three fingers of the worker were cut on the machine.'
or 'The fingers of three workers were cut on the machine.'

Because quantifiers cannot receive case directly from the Case Principles, their case is completely dependent upon agreeing with the case of the NP they modify. If the NP bears CASE [*gram*] lexically, then the quantifier bears CASE [*gram*] lexically. If the NP receives further case specification of nominative or accusative through the Case Principles, then this further specification also extends to the floated quantifier. The interesting aspect of sentences like (617) is that, in my analysis, the lower subject is lexically present on the SUBJ list of the lower verb, but that subject is never realized in constituent structure. The lower subject is coreferent with the dative causee, but that expressed causee is a lexical argument of the causative auxiliary. Thus, a floated quantifier modifying the lower subject can occur through lexical rule on the lower verb's COMPS list and accordingly be inherited by the causative auxiliary's COMPS list. This inheritance creates a situation in which the quantified NP never is satisfied from its list and thus never receives further CASE [*gram*] specification from the Case Principles, leaving the quantifier with no further case specification as it occurs in constituent structure.

A quantifier with a CASE [*gram*] specification, and no further specification of nominative or accusative, must however occur with one of those grammatical cases. Because it has not been completely specified, the quantifier is free to occur with either of the cases which match its lexical specification. Thus, a floated quantifier modifying the lower subject may occur in a sentence like (617) with nominative case resulting not from the Case Principles and not from any expressed lower subject, but purely resulting from nominative case matching the underspecified CASE [*gram*] value borne by the floated quantifier.

An interesting corollary of this position is that accusative case should also be possible on quantifiers modifying the unexpressed lower subject in causatives, because accusative case is the other valid realization of the underspecified CASE [*gram*] borne by the floated quantifier. If we examine the data on this question, we find that a sentence exactly parallel to (617) is marginal to unacceptable, as in (619).

(619) ?* Nay-ka haksayng-eykey **seys-ul** ttena-key hay-ss-ta
I-Nom student-Dat three-Acc leave-Adv do-Pst-Dec
'I made three students leave.'

However, an example contrasting a dative causee in one sentence with a dative causee in the following sentence is completely grammatical with an accusative quantifier, as seen in (620).

(620) a. Nay-ka nam-haksayng-eykey-nun seys-ul chayk-ul ilk-key
I-Nom male-student-Dat-Top three-Acc book-Acc read-Adv
hay-ss-ta
do-Pst-Dec
'I made three male students read a book.'

b. Kuliko ye-haksayng-eykey-nun hana-lul chayk-ul ilk-key hay-ss-ta
and female-student-Dat-Top one-Acc book-Acc read-Adv do-Pst-Dec
'And then I made one female student read a book.'

Thus, while stylistic concerns may rule out some examples, our grammar should include instances of accusative quantifiers coreferent with dative causees, as well as the unexpressed lower subjects. Our account of underspecified grammatical case matches the data exactly: quantifiers modifying unexpressed NP's with grammatical case may surface with either of the grammatical cases, nominative or accusative. Thus, floated quantifiers do not provide evidence of agreement with a null pronominal subject, nor with a subject in an original biclausal constituent structure, but rather of the opposite. The lack of a subject position, and thus the lack of application of the Subject Case Principle to an expressed subject, leaves the underspecified quantifier free to vary in grammatical case. This result follows from my analysis of grammatical vs. semantic case marking.

A purely lexical account of case marking would have identified the quantifier's case with the unexpressed subject, and predicted the possibility of nominative case on a floating quantifier of a dative causee coreferent with a lexically nominative but unexpressed subject, as in (617). However, a lexical account would not predict accusative case for a floating quantifier of this kind, and thus would have no way to account for sentences such as (620). Thus, the case of floating quantifiers in causative sentences provides further evidence that Korean case cannot be accounted for purely lexically, and that grammatical case must be lexically underspecified, varying between nominative and accusative, and realizing its full specification only in conjunction with the Case Principles in syntax.

5.4.3.4 Conclusion: Resumptive Pronouns and Quantifier Float

Resumptive pronouns and floated quantifiers which are coreferent with the causee and bear nominative case may appear to fill a lower subject position in a lower clause of causative sentences; however, evidence from *-kkeyse* marking and scrambling demonstrates that these nominative elements are not subjects. This section has shown that nominative resumptive pronouns may reflect an agentive semantic role, while nominative floated quantifiers reflect the underspecified grammatical case they received from the lower subject, unexpressed in constituent structure, but present in the lower verb's lexical entry. Thus, these nominative elements do not in fact provide evidence against a monoclausal account of causative; my analysis incorporates this data naturally, and with the support of new data predicted by my assumptions.

5.4.4 Conclusion: Problems for Monoclausality

The Passive and Object Honorification problems as presented in previous accounts are based on an incomplete understanding of the facts of the phenomena, completely apart from causatives. Once the phenomena are understood, causatives are not exceptions to the regular principles involved in these areas under the monoclausal analysis.

Resumptive pronouns and floating quantifiers are not in fact lower clause subjects in causatives, and they can be accounted for as semantic agentive modifiers and as elements with underspecified grammatical case, respectively.

In conclusion, while the problems raised for monoclausal analyses of the causative do require careful examination of the phenomena involved, in each instance, a monoclausal periphrastic causative analysis is completely consistent with all of the evidence.

5.5 Problems Raised for a Biclausal NOM Causee Analysis

The only papers I am aware of which argue that the periphrastic causative with a nominative causee is not biclausal are Gerdts (1986) and Gerdts (1990). She argues that these causatives are monoclausal in the same way as the causatives with dative and accusative causees, though the nominative causee has not been re-valued. She gives two arguments against a biclausal structure for the causative with a nominative causee based on inseparability of the lower and higher verb and on "Plain" Topichood.

5.5.1 Inseparability of Lower and Higher Verb

As discussed in Chapter 2, causatives with nominative causees do not permit adverbs or arguments to intervene between the *-key*-marked lower verb and the causative auxiliary. The examples illustrating this fact are repeated below, with the causer *emeni-kkeyse* 'mother-HNom' unable to appear between lower and higher verbs in (621b), and the adverb *coyonghi* 'quietly' unable to appear in this position in (621c).

(621) a. Emeni-kkeyse **ai-ka** chayk-ul ilk-key ha-si-ess-ta
mother-HNom child-**Nom** book-Acc read-Adv do-Hon-Pst-Dec
'Mother made the child read the book.'

b. *Ai-ka chayk-ul ilk-key **emeni-kkeyse** ha-si-ess-ta
child-Nom book-Acc read-Adv mother-HNom do-Hon-Pst-Dec
'Mother made the child read the book.'

c. *Emeni-kkeyse ai-ka chayk-ul ilk-key **coyonghi**
mother-HNom child-Nom book-Acc read-Adv quietly
ha-si-ess-ta
do-Hon-Pst-Dec
'Mother quietly made the child read the book.'

The same inability of adverbs and arguments to occur between the lower verb and the causative auxiliary forms part of the evidence supporting a verbal complex constituent for causatives with dative and accusative causees. Gerdts (1986:146–147 and 1990:220) argues that this similarity among causatives with nominative, dative, and accusative causees means that they should share the same structure. Furthermore, she argues that the inseparability of the two verbs can be attributed to their forming a single verb, and by Perlmutter's (1985) condition, given in (622) below, all sentences with this single causative verb must be monoclausal.

(622) **Perlmutter's Wordmate and Clausemate Condition:** If two elements are wordmates in morphological structure, then the elements that determine them are clausemates in the syntactic structure.

However, we have seen that the evidence in Chapter 2 is better accounted for by treating the lower verb and the causative verb in periphrastic causatives with dative and accusative causees as forming a verbal complex than by treating them as a single word. Because the causatives with nominative causees also permit the same negation and discourse markers to occur between the lower verb and the causative auxiliary, we would not want to treat these sentences as involving a single complex causative verb, either. Thus, Perlmutter's condition is irrelevant to our considerations.

Positing a verbal complex for the causatives with dative and accusative causees explains not only the inseparability of the lower and higher verbs, but also the ability of the matrix and lower arguments and adjuncts to be freely ordered and the ability of negative particles to take scope over the entire verbal complex. These additional properties do not hold true of the causatives with nominative causees, and thus positing a verbal complex for them as well would create great difficulties in explaining their absence. Consequently, it is preferable to give a distinct explanation for the inseparability of lower and higher verb in causatives with nominative causees.

In my analysis, the inseparability of lower and higher verb follows from a Linear Precedence (LP) constraint on S complements with VFORM *-key*. As given in (623), this constraint is intended to order *-key* complements clause-finally, except for the head verb.[43] This LP constraint is not binary, in a departure from most LP constraints, but the intent and effect of this constraint should be clear. The first element, [LEX −], denotes all the phrases sister to the *-key* complement other than the (non-phrasal) lexical head. In the second element, the tag $\boxed{1}$ is intended to identify the *-key* complement as a member of the head's COMPS list. Also, the empty COMPS list on the *-key* complement is intended to indicate that this is a saturated complement which takes arguments, as opposed to the many *-key* form verbs in Korean which function as adverbs, such as *alumtap-key* 'beautifully' from the verb *alumtap-ta* 'be beautiful', and are not subject to this ordering restriction. Note that "HEAD" in this rule refers to the head of the phrase whose linear order we are describing, not the HEAD feature which every phrase bears. The fact that the description of the head in this rule includes the COMPS list, which is not an appropriate attribute for the HEAD feature, reflects this distinction.

[43]The literature on causatives concentrates almost exclusively on causatives of the form *V-key ha-ta* 'V-Adv do-Dec', but it appears that both the form of the causativized verb and the causative auxiliary may vary, with causativized verbs also ending in the suffix *-tolok* 'in order that', and *mantul-ta* 'make-Dec' also functioning as a causative auxiliary. In this work, I did not examine these variants, in order to keep my arguments and considerations closely tied to the existing literature, but it would be interesting to explore whether these variants have identical properties to the more commonly cited forms.

If these forms were identical in characteristics to *V-key ha-ta* causatives, then the LP constraint in (623) would automatically cover *mantul-ta* causatives if they subcategorized for a *-key* complement. To cover *V-tolok* causatives as well as *V-key* causatives, it would be most natural to replace the specification of "VFORM -key" with a specification of the semantic sort to which *-key* and *-tolok* must both belong, in order to have both been appropriate suffixes to grammaticalize into this particular causative construction.

(623) **LP Constraint on *-key* Complements:**

$$\begin{bmatrix}\text{LEX} -\end{bmatrix} \; \langle \; \boxed{1}\begin{bmatrix}\text{VFORM -key}\\ \text{COMPS}\langle\;\rangle\end{bmatrix} \; \langle \; \text{HEAD}\begin{bmatrix}\text{LEX} + \\ \text{COMPS} \; \langle\ldots\boxed{1}\ldots\rangle\end{bmatrix}$$

I cannot claim that this LP constraint truly explains the word ordering behavior of the embedding causatives with nominative causees, but this constraint is adequate to produce exactly the correctly ordered sentences and no others. Perhaps the reason for this constraint stems from a stylistic desire for parallel word order to the verbal complex causatives, or perhaps the constraint is necessary to keep the causative auxiliary clear in meaning by appearing adjacent to its most significant complement and thus distinct from the many other *ha-ta* auxiliaries in Korean. It is possible that this constraint may find motivation from areas such as these; however, for our purposes, this constraint meets the need for embedding causatives to have a distinct means of ensuring inseparability of lower and higher verb from the verbal complex causatives. This inseparability alone might sway us from a biclausal analysis of causatives with nominative causees, but the greater array of properties of causatives shows us that these causatives are biclausal, and we are indeed able to produce the correct inseparability facts within a biclausal analysis.

5.5.2 Plain Topicalization

A second argument from Gerdts (1986, 1990) against a biclausal analysis of causatives with nominative causees comes from their behavior in Plain Topicalization. In this section, I will explain Gerdts' concept of Plain Topic and her constraint on their possible appearance, followed by an outline of her argument concerning Plain Topics and nominative causees. I will counter this argument by showing that my analysis can explain Gerdts' data equally well under a biclausal analysis of causatives with nominative causees.

Gerdts (1986:105–106) characterizes topicalized NP's in Korean as usually occurring in clause initial position and bearing the topic marker *-(n)un*. Gerdts divides Korean Topicalization into Plain Topicalization, which will "mildly highlight a nominal" and Contrastive Topicalization, which sets off a nominal as background for the sentence, or contrastively focusses it with something else. To exemplify the contrast, Gerdts gives the examples below. (624) gives a basic, non-topicalized sentence, of which each NP can serve as a mildly highlighted Plain Topic, as seen in the corresponding Plain Topic sentences in (625) with the Plain Topics in boldface.

(624) Emeni-ka aki-eykey mwul-ul cwu-ess-ta
mother-Nom baby-Dat water-Acc give-Pst-Dec
'Mother gave water to the baby.'

(625) a. **Emeni-nun** aki-eykey mwul-ul cwu-ess-ta
mother-Top baby-Dat water-Acc give-Pst-Dec
'**Mother** gave water to the baby.'

b. **Mwul-un** emeni-ka aki-eykey cwu-ess-ta
water-Top mother-Nom baby-Dat give-Pst-Dec
'Mother gave **water** to the baby.'

c. **Aki-eykey-nun** emeni-ka mwul-ul cwu-ess-ta
baby-Dat-Top mother-Nom water-Acc give-Pst-Dec
'Mother gave water to the **baby**.'

Contrastive Topics are seen in Gerdts' examples below.

(626) **Hakkyo-ey-nun** sensayngnim-i ecey o-si-ess-ta
school-Dir-Top teacher-Nom yesterday come-Hon-Pst-Dec
To the **school**, the teacher came yesterday.

(627) **Chayk-un** nay-ka Swunay-eykey cwu-ess-ko, **cangnankam-un**
book-Top I-Nom Swunay-Dat give-Pst-Conj toy-Top
Changho-eykey cwu-ess-ko, **mokkeli-nun** Yonghi-eykey cwu-ess-ta
Changho-Dat give-Pst-Conj necklace-Top Yonghi-Dat give-Pst-Dec
'A **book** I gave to Soon Ae, a **toy** to Changho, and a **necklace** to Yonghi.

Gerdts (1986:106) acknowledges that "Judgments concerning these two types of Topics are somewhat elusive, especially since, in many cases, both readings are possible. However, Plain Topics seem to have a more limited distribution." Gerdts gives (628b) as an example where an NP cannot be a plain topic, although the basic sentence in (628a) is fine. (628b) contrasts minimally with (625c), with the only difference being accusative case rather than dative case on the recipient *aki* 'baby'.

(628) a. Emeni-ka aki-lul mwul-ul cwu-ess-ta
mother-Nom baby-Acc water-Acc give-Pst-Dec
'Mother gave water to the baby.'

b. ***Mwul-un** Emeni-ka aki-lul cwu-ess-ta
water-Top mother-Nom baby-Acc give-Pst-Dec
'Mother gave **water** to the baby.'

Accordingly, Gerdts proposes the following constraint, which prevents chômeurs from being Plain Topics, in Relational Grammar terminology. In Relational Grammar, the accusative case on the recipient *aki* in (628) indicates that it has advanced to 2-hood, and thus made the original 2 argument *mwul* 'water' into a chômeur.

(629) **Gerdts' Plain Topicalization Restriction:** A nominal heading a cho-arc cannot serve as a Plain Topic.

O'Grady (1991:56) states that, contrary to Gerdts' data, many Korean speakers find (628b) perfectly acceptable, and he offers the following parallel example from Younghee Na as more widely accepted than (628b). There is agreement with this position among my consultants. One potential difference between the two sentences is that the verb *tuli-ess-ta* 'gave' in (630) selects for an honored recipient, and thus distinguishes its recipient argument in a way that the neutral verb *cwu-ess-ta* in (628) does not.

(630) **Ku chayk-un** nay-ka emeni-lul tuli-ess-ta
that book-Top I-Nom mother-Acc give-Pst-Dec
'I gave mother *the book*.'

E. Cho (1988:201) accepts the ungrammaticality of (628b), but finds this evidence for Gerdts' restriction insufficient, because of the independent discourse factors involved in the sentence. He states "when speakers want to emphasize the original dative nominal by putting it in an accusative case, they never highlight the original accusative nominal in discourse."

While I also believe that discourse factors are important to consider, and perhaps the key to understanding the possible readings of Topicalization, we can accept Gerdts' data and her Plain Topicalization Restriction for the sake of argument, and still support a biclausal analysis of the causatives with nominative causees. I turn now to the specifics of Gerdts' claims regarding causatives.

Gerdts (1986:144–146, 1990:218–219) argues that Plain Topicalization supports a monoclausal structure for causatives with nominative causees, because a nominative causee cannot be a Plain Topic. In Relational Grammar terminology, Gerdts' monoclausal analysis posits final 1-hood for the causer, while the causee is a final 1-chômeur. These grammatical relations contrast with those posited by a biclausal analysis, in which both the causer and the causee would be final 1's in their own clauses. In accordance with Gerdts' Plain Topicalization Restriction, the nominative causee would not be able to be a Plain Topic if it were in fact a 1-chômeur, as under Gerdts' monoclausal analysis.

As evidence for her position, Gerdts gives the examples below in (631) and (632).[44] The (a) readings represent the plain topicalization of the causer, which is acceptable, as predicted by both the biclausal and monoclausal analyses of causatives with nominative causees. The (b) readings represent the more critical plain topicalization of the causee.

(631)	**Sensayngnim-un**	haksayng-i	ttena-key	hay-ss-ta
	teacher-Top	student-Nom	leave-Adv	do-Pst-Dec

a. 'The teacher made the student leave.'

b. 'The student made the teacher leave.'

[44]These examples are not ideal for the dual interpretations Gerdts gives them, because each one involves a typically honored person and a typically non-honored person. Gerdts does not use the verbal honorific suffix *-si* or the honorific verb *capswusi-ta* 'eat', as she notes, but had she used two arguments of the same honorific status, the examples would be more readily reversible.

(632) **Emeni-nun** ai-ka ttek-ul mek-key hay-ss-ta
mother-Top child-Nom rice.cake-Acc eat-Adv do-Pst-Dec
a. 'The mother had the child eat rice cake.'
b. ?'The child had the mother eat rice cake.'

The acceptability of these (b) readings is a prima facie problem for Gerdts' account; however, she argues that these readings are available not because of plain topicalization of nominative causees, but rather of accusative causees. Because neither nominative nor accusative case marking appears together on the same NP with the topic marker *-un*, the surface result of topicalizing a nominative causee and an accusative causee would be the same.

To overcome the situation in which either the biclausal or the monoclausal analysis explains the data equally well, Gerdts proposes to differentiate the topicalized sentences according to their underlying case marking on the causee. Her analytical tool for this purpose is the agreement in case marking of floated quantifiers with the NP they modify. Gerdts demonstrates that the presence of a nominative quantifier modifying the topic leads to the interpretation of the sentence as involving topicalization of the causer in (633), while the presence of an accusative quantifier modifying the topic indicates topicalization of the causee in (634).

(633) **Haksayng-tul-un** seys-**i** nay-ka ttena-key hay-ss-ta
student-Plur-Top three-Nom I-Nom leave-Adv do-Pst-Dec
a. 'Three **students** made me leave.'
b. ?*'I made three **students** leave.'

(634) **Haksayng-tul-un** seys-**ul** nay-ka ttena-key hay-ss-ta
student-Plur-Top three-Acc I-Nom leave-Adv do-Pst-Dec
a. ?*'Three **students** made me leave.'
b. 'I made three **students** leave.'

Gerdts thus concludes that in the particular instance of (633), where the accusative causee source for the Plain Topic is ruled out by the quantifier case marking, the Plain Topic can only be interpreted as the causer, i.e. the (a) reading, and not the causee, i.e. the (b) reading.

However, this data does not bear exclusively on the question of Plain Topicalization of nominative causees. Recall that NP's generally must occur within the clause headed by the verb which subcategorizes for them. Being topicalized can allow a single NP in clause-initial position and with topic case marking to occur outside its clause, as in (633) where we can accept *haksayng-tul-un* 'student-Plur-Top' occurring outside its clause under the biclausal analysis. However, the nominative quantifier *seys-i* 'three-Nom' in (633) occurs before the matrix element *nay-ka* 'I-Nom' without topic marking and as the second element of the sentence, rather than the first. Thus, the biclausal analysis would not necessarily, contrary to Gerdts' assumptions, predict (633) to be grammatical. In fact, O'Grady (1991:175) in discussing Gerdts' argument, cites as Gerdts' data a slightly different example from the one in Gerdts (1986, 1990). His example, which his consultants found grammatical, is given below.

(635) **Haksayng-tul-un**$_i$ nay-ka seys-**i**$_i$ ttena-key hay-ss-ta
student-Plur-Top I-Nom three-Nom leave-Adv do-Pst-Dec
'I had three **students** leave.'

Note that in (635) the quantifier *seys-i* 'three-Nom' occurs after the matrix element *nay-ka*, leaving only the topicalized *haksayng-tul-un* 'student-Plur-Top' occurring outside of its clause. Thus this example falls within normal word ordering expectations, in contrast to (633), and would be more likely to be judged grammatical.

A further point to note about (633) is that, as discussed in the previous section as a prima facie problem for monoclausal analyses, the presence of a nominative quantifier does not in fact ensure that the modified causee has nominative case. Nominative quantifiers also can modify accusative causees, because the quantifier of an unexpressed lower subject will bear underspecified grammatical case. Thus, Gerdts' tool for distinguishing accusative and nominative causees by the case marking on their quantifiers cannot be relied upon to distinguish Plain Topics of nominative causees. The unacceptability of (633) under the interpretation where an accusative causee is topicalized does not follow from restrictions on Plain Topics or clause-bounded restrictions on word order. I will attribute this unacceptability to stylistic reasons, and note that Gerdts does not list the interpretation as completely ungrammatical, but rather as ?*.

In conclusion, Gerdts' Plain Topicalization Restriction is founded on data that is not accepted by all speakers, and couched in purely relational terms to the exclusion of any discourse factors. The contrast she claims exists between causatives with nominative and accusative causees can be attributed to the existence or non-existence of a clause boundary blocking free word ordering of the lower clause's nominative quantifier, rather than the chômeur status of the nominative causee. In addition, the use of quantifiers to distinguish the underlying case of the modified NP is not a reliable test for causees, due to the underspecified grammatical case on a quantifier modifying an unexpressed subject. Thus, the Plain Topicalization evidence presented by Gerdts does not give us cause to reject a biclausal analysis of causatives with nominative causees.

5.5.3 Conclusion: Problems for Biclausality

The problems Gerdts (1986, 1990) raises for biclausal analyses of causatives with nominative causees require consideration, but they do not provide an overwhelming reason to adopt a monoclausal analysis, in light of the evidence presented in Chapter 2 which distinguishes embedding causatives from verbal complex causatives. The inseparability of the higher and lower verb can be accounted for by an LP constraint, and the data explained by a restriction on nominative causees as Plain Topics can also be explained by a clause-bounded restriction on scrambling, and perhaps discourse factors as well. Thus, I will continue to maintain a biclausal analysis of causatives with nominative causees.

5.6 Chapter Conclusion

Other analyses of causatives in Korean have presented various types of problems for monoclausal analyses of periphrastic causatives with dative and accusative causees, and for biclausal analyses of periphrastic causatives with nominative causees. Because of the design of HPSG, many proposed problems are easily accounted for within my analysis, such as subject honorification, plural copying, control clauses, and subject-oriented anaphora. The problems presented for a monoclausal analysis of verbal complex causatives by passive, object honorification, and resumptive pronouns and floating quantifiers are more challenging, and require a thorough examination of the data. In the end, we see that the passivization and object honorification properties of causatives do fit expectations of monoclausal structures. The resumptive pronoun and floating quantifier facts follow from the association of nominative case with agentivity and the underspecified grammatical case borne by floating quantifiers. Finally, the biclausal analysis of causatives with nominative causees can adequately prevent matrix elements from intervening between the inseparable lower and higher verbs, and a clause-bounded scrambling restriction can produce the correct Plain Topic data.

Thus, all problems posed in previous accounts for the position I adopt can be resolved satisfactorily, leaving my analysis as meeting all conditions set forth for an adequate account of Korean lexical and periphrastic causatives.

Chapter 6

Conclusions and Future Research

In this concluding chapter, I will review several aspects of the issues, data, and arguments put forth in the thesis. First, I will address the impact of my main theoretical claim regarding argument composition in Korean causatives. Second, I will return to the theoretical issues from the literature on Korean causatives summarized in Chapter 1, from the perspective of the facts and arguments addressed in Chapters 2 through 5. Third, I devote a section to the additions to Korean syntax made in this thesis, with outlines of areas for potential future work. My final section addresses the additions to HPSG contributed by this thesis, with discussion of possible future developments expanding on these additions.

6.1 Argument Composition and the Lexicon

The title of this thesis could be taken to indicate the method of causative formation for periphrastic causatives and the place of causative formation for lexical causatives, respectively. However, a wider meaning of the title is to indicate how grammatical relation changing fits into a model of grammar with monotonic syntax: argument composition is possible syntactically, while other relation changes may occur lexically. Related to this conception of the title, argument composition depends crucially on the specifications given in the lexicon which determine whether and how argument composition may take place; thus, argument composition and the lexicon need to be considered together in order to account for any syntactic relation-changing phenomena.

Argument composition is necessary to account for syntactically monoclausal constructions involving two lexically separate verbs in a manner faithful to the principles of a syntactic theory without syntactic transformations. In argument composition, the lexical specifications of the head verb completely determine the resulting complex verb's subcategorization, as well as any identification of syntactic or semantic features of the head and complement verbs. Thus, the lexicon retains its crucial, predominant role in explaining subcategorization and, consequently, constituent structure possibilities.

Looking beyond the immediate motivation for argument composition provided by data from constructions such as Korean periphrastic causatives, argument composition is a natural extension of the grammar along the lines of Raising and Equi Control. Theories such as Lexical-Functional Grammar and HPSG have long accepted that a higher verb can have an object coreferent with the subject of a lower verb, with that subject unrealized in constituent structure. Argument composition extends this idea further to non-subject arguments, which may thus be realized as arguments of the higher verb.

Thus, argument composition fits naturally in the grammar, retaining the dominant role of the lexicon, and preserving a monotonic syntax. The Korean data presented in this thesis motivate its existence, with the analysis of complex predicates in other languages certain to benefit from adopting argument composition analyses.

6.2 Returning to Theoretical Issues in Korean Causatives

Chapter 1 included a discussion of three main categories of issues discussed in the literature on Korean causatives, namely, clausality and constituent structure, case marking and structure, and lexical vs. periphrastic causatives. I now return to those categories, to give my positions in these areas, as supported by the arguments and data presented in this thesis.

6.2.1 Clausality and Constituent Structure

In order to reconcile all the biclausal and monoclausal properties of lexical and periphrastic causatives, this thesis has analyzed various properties as reflecting different aspects of clausality. Clausality in terms of semantic relation determines adverbial modification and negation possibilities, with nested semantic relations giving causatives their semantic biclausality. Clausality in terms of the relation of the head to a clause must be subdivided into lexical specifications of the head concerning its arguments and syntactic combination of the head with its arguments in constituent structure. Lexical specifications of the head determine properties like acceptability of the subject honorification suffix and plural copy on the verb, while the syntactic combination of the head with arguments determines scrambling and negative scope possibilities. The apparent conflicts in clausality are resolved by separating out the different aspects of clausality. The terminology used to discuss the analysis of causatives often makes use of these different aspects of clausality, as in referring to "matrix" subject and "lower" subject, when the distinction between "matrix" and "lower" clauses only obtains in the nested semantics and in the presence of two verbs with their own lexical subcategorizations for subjects, but not in the constituent structure.

Argument composition, the lexically specified inheritance of arguments of a complement by the head, allows for the correct distribution of clausality properties in the causative because the mechanism of argument composition is based in subcategorization, and subcategorization is at the heart of many of the clausality-related characteristics. Subcategorization is responsible for many items which might be used as diagnostics of clausality, such the number of subjects or objects appearing in a clause. In considering Korean causatives, subject honorification, plural copy, and *-kkeyse* honorific nominative marking are tests of clausality based on the number of subjects in a sentence which can be reduced to subcategorization facts. Data concerning nominative resumptive pronouns and floating quantifiers was used by other accounts as evidence of the number of subjects in causatives.[1] The number of objects

[1]The number of expressed subjects does not correlate exactly with the number of clauses in

appearing in a sentence could be used as a test of clausality, if a language were shown to have specific restrictions on the number and behavior of objects. Other accounts argued that passive and object honorification facts in Korean causatives involved only one object showing object behavior in the matrix clause, and thus the presence of another object without that behavior showed the existence of another clause. The uniqueness of objects is not an expected characteristic, in contrast to the uniqueness of the subject in a clause. Through a head's subcategorization for subjects, objects, and any other arguments, we can account for clausality-related effects in a single lexical item, explaining effects in several areas of grammar through this one crucial point.

Subcategorization indirectly produces other diagnostics of clausality, such as determining constituent structure in conjunction with the Phrase Structure Schemata and determining adverbial scope as adverbs are lexically added to the COMPS list concurrently with the addition of their modification to the verb's semantic RELATION.

The centrality of subcategorization to these clausality diagnostics and to the explanation of the monoclausal and biclausal properties of Korean causatives fits neatly within the HPSG framework; the "head-driven" property of HPSG allows the explanation of the properties of causatives through the correct specification on the causative verbal head. The head is basic to understanding the issues concerning causatives, and argument composition allows for the complex situation where two heads combine into a single head. Thus, we cannot diagnose clausality directly from the number of heads present in a sentence, because two heads can function as a single headed structure in argument composition.

Thus, constituent structure notions of clausality exist alongside other aspects of

HPSG, because VP complements, which do not have a subject expressed within the clause, still involve a biclausal structure with a clausal boundary between the arguments of the lower verb and the matrix arguments. However, I would not refer to the VP complement as a complete clause in itself. Recall that we could call sentences with VP complements "sesquiclausal" rather than "biclausal", but the properties of sentences with S complements and VP complements are similar enough to allow the single, familiar term "biclausal" to cover both.

clausality, with subcategorization mediating between many of these aspects. Constituent structure clausality reflects the syntactic combination of arguments with the head of the clause, while other aspects of clausality involve possible nested semantic relations and lexical specifications of one or more heads. Constituent structure weighs heavily as a diagnostic of subcategorization, and thus of several aspects of clausality, but the connection between constituent structure and clausality is indirect, relying on phrase structure schemata as well. Thus, causatives can have monoclausal constituent structures, and still possess many biclausal characteristics.

6.2.2 Case Marking and Structure

Case marking reflects the interplay between the different aspects of clausality, in that lexical specifications of the head determine much of case marking through subcategorization, but the syntactic combination of arguments with a head is necessary for the Case Principles to fully specify grammatical case. Syntactic combination with the head is also necessary for some particular kinds of semantic case marking, such as the locative markers *-ey/-eyse* in Korean which alternate in form depending on the stativity and agentivity of the head they combine with.

Nominative case on an argument of a verb does generally indicate subjecthood in my account, provided that this argument is not a sentence-initial Focus or appearing with a verb which takes a nominative object. Thus, nominative case on the causee is correlated with biclausal structure for the causative in my account, while dative and accusative case marking on the causee each indicate a monoclausal constituent structure for the causative.

6.2.3 Lexical vs. Periphrastic Causatives

Although comparison of lexical and periphrastic causatives is not directly relevant to deriving one from the other, as in older transformational grammar, it is still interesting as a means to compare the same properties in the same language across slightly different constructions, as a check on the representation or analysis of both the properties and the constructions. Because many modern accounts of Korean periphrastic causatives have not also included lexical causatives, I will summarize the differences and similarities between lexical and periphrastic causatives as discussed in this thesis in some detail below. Most of these points come from other accounts; I will discuss the similarities and differences observed in this thesis after first reviewing the generally known points.

Many differences between lexical and periphrastic causatives have been observed. Lexical causatives are non-productive and becoming less widely used, especially in their semantically biclausal sense, while periphrastic causatives are completely productive. A sense of direct causation characterizes lexical causatives, while a sense of indirect causation is found in periphrastic causatives. Lexical causatives are implicative, contrasting with periphrastic causatives, which are non-implicative. Semantically, lexical causatives presuppose the existence of the entities they affect, while periphrastic causatives do not. Constituent structure allows for all negative scope possibilities in periphrastic causatives, but only for negative scope involving the entire causative verb in the lexical causative. Morphologically, lexical causatives do not allow the appearance of the subject honorification suffix *-(u)si* for an honorific causee, while periphrastic causatives do. On a similar morphological note, lexical causatives do not allow spurious plural markers to reflect the plurality of a causee, while periphrastic causatives have the constituent structure availability of each verb, and can have spurious plural markers for plural causer or causee. Adversity passives are possible only in lexical causatives, and not in periphrastic causatives.

Case marking yields a further area of potential difference between the two forms of causative. For many speakers, the causee of an intransitive lexical causative cannot bear dative case, while the causee of an intransitive periphrastic causee can bear dative case. For some speakers, both kinds of causative share the inability to have dative case on the causee in a causative of an intransitive verb.

The similarities between lexical and periphrastic causatives reflect their semantic biclausality. Adverbial multiplicity and adverbial ambiguity are seen in both lexical and periphrastic causatives, although these properties are slightly more limited in lexical causatives. Anaphors appear to have the same antecedent possibilities in both lexical and periphrastic causatives, whether clause-bounded anaphors such as *cakicasin* or long-distance anaphors such as *caki* and *casin*.

This thesis has contributed data on differences in focus and implicativity between Korean lexical and periphrastic causatives. In Focus, lexical causatives have more natural Focus sentences in passive than periphrastic causatives do. Moreover, Focus reflects a difference in obliqueness between the roles in the two forms of causatives: the lower object is the focus NP in passives of periphrastic causatives, while the causee is the focus NP in passives of periphrastic causatives. The implicativity difference between lexical and periphrastic causatives can be explained as resulting from a shared delimiter in the higher and lower nested semantic relations of the lexical causative. The fact that the delimiter is shared can be seen in the inability of (non-adversity) passives of lexical causatives to have accusative objects, while passives of periphrastic causatives naturally have accusative objects.

In addition, this thesis has observed a similarity between lexical and periphrastic causatives in their behavior with benefactive auxiliaries in the "object honorification" construction, which had been thought to reflect properties of periphrastic causatives in particular.

6.3 Additions to Korean Syntax

I would now like to review the particular observations of data in Korean syntax contributed by this thesis, and link many of these observations to areas of possible future work.

Chapter 2 presented detailed scrambling data concerning periphrastic causatives, including the interaction of scrambling with negative polarity and observations about the possibility of splitting apart verbal complexes in limited circumstances. To address the difficulties in judging scrambling sentences, with "judgment fatigue" setting in quickly among many of my consultants when confronted with many scrambled versions of the same sentence, future work on scrambling may profit from more naturalistic data collection. In the analysis of scrambling possibilities, optimality theory (Prince and Smolensky 1993, Grimshaw 1993, H. Choi 1996) may provide a means of intermixing stylistic considerations with grammatical constraints to address the complete range of data.

Chapters 2 and 4 examined adverbial case marking, relying on previous accounts characterizing it as reflecting the agentivity or stativity of the head. Future work could focus on the precise semantic characterization of the semantic feature of the head which determines the alternation. In addition to that semantic work, future work in syntax could examine the complex dialect in which some speakers appear to have different constraints on adverbial case marking depending on whether the adverbial appears inside or outside VP, to verify this condition.

Chapter 2 laid out phonological phrasing data which could argue for a different constituent structure for the periphrastic causative than for VP complement sentences. Future research would benefit from finding speakers who fit the intended dialect which reflects VP in phonological phrasing to test my hypothesis on. This evidence could integrate phonological and syntactic investigations of structure, bringing new evidence to the much-studied causatives. I have presented an argument with data ready for testing.

Another interesting area of new data in Chapter 2 is the seeming grammaticalization of several causative verbal complexes into new lexical causatives. Future research could obtain diachronic distributional data on these and other forms, to determine whether this is a change in progress. Also, future syntactic work could examine the properties of these new lexicalized causatives compared with other lexical causatives and current periphrastic causatives. The properties of these new grammaticalized causatives could shed light on the question of whether a language restricts the grammatical dimensions of how causatives lexicalize, or whether structural and semantic variation between different types of lexicalized causatives should be expected within a single language.

The case marking proposals of this thesis predict that the case marking of objects in causatives of statives would be different from objects in statives. The data examined here showed this difference, but also some murkiness of judgments. Case marking of adverbs in causatives of statives also shares the lack of clear, distinct judgments. Future analysis within optimality theory account might be able to address the murkiness seen here, to provide a complete account.

In a second area relying on speakers with a dialect different from my consultants, my thesis presents predictions about case stacking on causees, which depends on future research with speakers of case stacking dialects to provide the actual judgments.

This thesis has also contributed new data on passives, showing a distinction between the nominative arguments in ellipsis, and demonstrating the possibility of focus of the lower theme in passive of periphrastic causatives. An analytical contribution is the use of a single semantic delimiter for the lexical causative, as seen in its implicativity, in order to explain the impossibility of accusative case in passive of lexical causatives.

In object honorification, this thesis observed that lexical and periphrastic causatives have the same behavior with respect to honored beneficiaries, an unexpected fact under previous accounts linking object honorification with constituent structure clausality.

The evidence that the honorific subject marker *-kkeyse*, which only appears on subjects, cannot appear on nominative resumptive pronouns or floated quantifiers rebutted the presumption that these nominative items were subjects of a lower clause in the causative. In confirmation of the predictions of the Case Principles adopted here, this thesis demonstrated that accusative floated quantifiers as well as nominative quantifiers occur modifying dative causees, due to their underspecified grammatical case assignment.

Areas where future work could contribute evidence about causative structure include the behavior of other anaphors in causatives than the particular, most commonly discussed anaphors included here, as well as the behavior of pronouns in causatives. Future work could also examine lexical causatives, in particular studying their decrease in usage and decrease in being interpreted as having biclausal semantics. A diachronic study of any changes of the properties investigated in this thesis could be very interesting. Many of my consultants report that their parents might use certain lexical causatives, but these consultants do not use those words themselves, so changes may be readily observable in materials from this century.

6.4 Additions to HPSG

I now turn to the particular differences my analysis has with the standard theory of HPSG. I include in this section items which make different assumptions than standard HPSG, as well as items which may be completely compatible with standard HPSG, but have not yet been adopted into the generally accepted HPSG framework. Some of these items are unique to my thesis, while other items have been proposed in other HPSG work as well. Parallel to the previous section, I couple many descriptions of additions to HPSG with future developments which could extend these ideas.

Contrary to standard HPSG, I permit nonphrasal complements by adding the Lexical Complex Schema which permits two [LEX +] elements to combine to form another [LEX +] element. This is the basis of the verbal complex, and a constituent structure which mirrors the particular close relationship of the two heads involved in argument composition.

Another basic difference with HPSG occurs in my formulation of the sorts *head-subj-struc* and *head-comp-struc*, as well as Schema 2. I adopt a Sells-style VP, which is defined by not containing the subject, rather than by containing all non-subject arguments. Accordingly, I permit non-subject arguments to be satisfied in either *head-subj-struc* or *head-comp-struc*, while the sorts differ in that *head-subj-struc* must have a SUBJ-DTR, while *head-comp-struc* may not have one.

As a restriction on the possible constituent structures for any Korean sentence, supported by phonological phrasing data and constraining analyses of floating quantifiers as well, I add the Subject-Final LP Rule, which orders the subject last of all arguments sister to VP.

Like several other analyses of causatives and complex predicates in HPSG, I adopt argument composition as the mechanism of grammatical relation changing in the syntax. My work here adds support to the position taken by these other analyses. I also demonstrate that argument composition does not account for every instance of grammatical relation changing involving an auxiliary, based on evidence concerning the periphrastic passives in Korean.

A related future development which may occur within HPSG theory is the postulation of constraints on argument composition, either absolute or as parameters within a typology.[2] A possible constraint of this sort may be that argument composition occurs only between [LEX +] items, rather than allowing a head to satisfy some arguments before passing its remaining arguments on to another head, or inheriting other arguments from another head. Another possible constraint is that argument composition may be restricted to allowing entire valence lists, such as the entire SUBJ list, or the entire SUBJ and COMPS list. Currently, there is no restriction to prevent a head from specifying any subset of a complement's arguments for inheritance, yet it would be natural for linguistic theory to limit this mechanism. For example, obliqueness may constrain which arguments may be inherited, with objects able to be inherited only if the subject is inherited, and an indirect object able to be inherited only if the direct object is inherited.[3] Combining the possible constraints of obliqueness and entirety of valence lists would mean that argument composition could involve the SUBJ list or the SUBJ list plus the COMPS list, but it could not involve only the COMPS list or any subset of the COMPS list.

In the areas where I touch on phonological restrictions and phonological effects, I suggest an elaborated PHON value for HPSG, which could involve phonological subcategorization in addition to the syntactic subcategorization found in the SYNSEM value.

As in Miller (1991) and van Noord & Bouma (1994), my thesis includes an Adjunct

[2]The constraints on incomplete predicates proposed by Alsina (1993:299-305) and the properties of argument composition in French discussed by Miller and Sag (1995, 1996) provide useful material for this issue.

[3]Miller and Sag (1995, 1996) present data relevant to the formulation of this constraint, and a possible need for it to be parameterized across languages as part of a typology. For example, in (i), Miller and Sag analyze the passive verb *présenté*'s complement *aux enfants* 'to the children' as more oblique than the complement *par Marie* 'by Marie', and yet the *aux enfants* 'to the children' complement is satisfied from the verb *présenté* directly, while the *par Marie* 'by Marie' complement is inherited by and satisfied from the copula *sera* 'will be'.

(i) Présenté aux enfants, Pierre le sera certainement par Marie.
presented to.the children Pierre it will.be certainly by Marie
'Presented to the children, Pierre will certainly be (it) by Marie.

Addition Lexical Rule which adds adjuncts to the COMPS list rather than having modification determined by constituent structure. Once again, I also demonstrate the limits of this new HPSG mechanism: negative particles contrast with adverbs in requiring constituent structure and the Head-Adjunct Schema to determine their scope.

Future work in HPSG could explain the degree to which obliqueness-related properties reflect the presence of adjuncts on the COMPS list. It is simpler to add adjuncts to the COMPS list than to create a separate ADJUNCTS list, but it will be necessary to determine if all argument/adjunct distinctions can be made on the basis of comparing the base lexical entries with the derived entries with adjuncts present on the COMPS list. Argument/adjunct distinctions may also rely on other factors, such as bearing semantic roles or coindexation with semantic values such as DELIMITER. Thus, future work will be necessary to clarify the specific HPSG reflection of any theoretical distinctions between argument and adjuncts. A second issue related to the treatment of adjuncts concerns whether noun-modifying adjuncts also involve adjuncts lexically added to a head, or if these adjuncts are added in constituent structure. The question of the analysis of noun-modifying adjuncts in relation to the analysis of verb-modifying adjuncts will need to be answered in Korean as well as in other languages for which an Adjunct Addition Lexical Rule has been posited.

My analysis of direct causation as a linking of the time and location values of the two nested relations in the biclausal semantics adds another kind of identification of feature values to HPSG. Future development of this idea might attempt to derive a feature geometry of semantic factors to indicate exactly which features can be tied together in this way, and what constraints might obtain on semantic feature identification.

I add to HPSG specific, differing representations of negation for negative particles, which simply change POLARITY of the negated verb to 0, and negative auxiliaries, which have a NEGATION relation. The NEGATION relation could be developed in future work to represent the processing complexities of interpreting multiple, nested negations of the same semantic relation.

Contrary to standard HPSG, but in line with recent accounts within the theory, my analysis distinguishes two types of case marking: grammatical and semantic. Based on evidence from case marking alternations reflecting constituent structure, grammatical case is fully specified only in the syntax, with underspecified grammatical case present in the lexicon. Semantic case is lexically specified in the head's lexical entry and in the lexical entry of the case-marked element, with no syntactic interaction beyond simple unification of the information from both lexical entries.

The details of my grammatical case marking in syntax involve the new Subject Case Principle, for case marking of subjects, and Object Case Principle, for nominative or accusative case on objects. The Object Case Principle unifies the AGENTIVE-PREDICATE-SISTER (AG-PR-SIS) specification contributed to the noun by its case marker with the corresponding specification on the verb.

I add to HPSG the semantic types of singly-delimited and multiply-delimited, in order to rule out passives of verbs with two accusative arguments, in accordance with semantic observations. Also, I introduce the linking of the lexical causative's nested and matrix delimiters. Future developments in HPSG may produce a more precise representation of the DELIMITER feature and the singly- and multiply-delimited types, relating them to other semantic characteristics, and fitting them into a well-structured semantics.

Like Miller and Sag (1995, 1996) in their analysis of French, I propose a lexical rule adding floated quantifiers as adjuncts with the correct agreement. My Floated Quantifier Addition Lexical Rule gives floated quantifiers the correct case marking dependent on the argument they modify. Future work could extend this lexical rule to encompass other instances of adjuncts with case dependent on other elements in the clause.

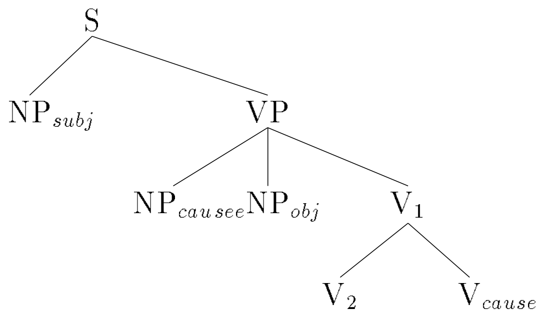
In my analysis of floating quantifiers, I introduce the idea of underspecified case in syntax as seen by its freedom to vary between the possible full specifications. Future research in HPSG could extend this concept crosslinguistically, to examine whether many case phenomena can be treated similarly.

I introduce a specific LP Constraint to order *-key* complements adjacent to the heads subcategorizing for them. Future development of this idea in analysis of Korean in HPSG could attempt to motivate this constraint from stylistic concerns or clarity of meaning.

6.5 Conclusion

This thesis has argued that both lexical and periphrastic causatives in Korean are syntactically monoclausal and semantically biclausal. Lexical causatives have constituent structure monoclausality by virtue of their unity in the lexicon, while periphrastic causatives have constituent structure monoclausality in their verbal complex structure, as seen below.

(636) Causative: canonical order



Korean periphrastic causatives involve argument composition as the mechanism for permitting the causative auxiliary to inherit the arguments of its verbal complement. The lexical entry for the periphrastic causative auxiliary *ha-ta* specifies the precise way in which argument composition takes place in the valence lists, as seen below.

(637)

$$\left[\begin{array}{ll} \textsc{phon} & \langle \text{ha-ta} \rangle \\ \textsc{synsem} & \left[\begin{array}{ll} \textsc{cat} & \left[\begin{array}{l} \textsc{head} \left[\textit{verb}\right] \\ \textsc{subj} \left\langle \text{NP}_{\boxed{1}} \right\rangle \\ \textsc{comps} \left\langle \text{NP}_{\boxed{2}}, \left[\begin{array}{l} \textsc{head} \left[\textit{verb}\right] \\ \textsc{subj} \left\langle \text{NP}_{\boxed{2}} \right\rangle \\ \textsc{comps}\ \text{L} \\ \textsc{content}\ \boxed{3} \end{array}\right] \right\rangle \oplus\ \text{L} \end{array}\right] \\ \textsc{content} & \left[\begin{array}{l} \text{RELN cause} \\ \textsc{causer}\ \boxed{1} \\ \textsc{causee}\ \boxed{2} \\ \textsc{soa-arg}\ \boxed{3} \end{array}\right] \end{array}\right] \end{array}\right]$$

The lexical causative involves a similar inheritance of arguments within the lexicon, where theories such as Lexical-Functional Grammar and HPSG have expected to find grammatical relation-changing phenomena. The lexical causative affix inherits the arguments of a verbal stem, as seen in its lexical entry below. Note that the lexical causative is grammaticalizing and becoming more like ordinary transitive verbs in having the theme argument less oblique than the causee argument, an obliqueness ordering opposite to that of the periphrastic causative, as well as in its identification of the spatial and temporal location, and delimiter features between the higher and lower nested semantic relations.

(638)

$$
\begin{bmatrix}
\text{PHON } \langle \text{ -hi } \rangle \\
\text{SYNSEM} \begin{bmatrix}
\text{CAT} \begin{bmatrix}
\text{VFORM stem} \\
\text{SUBJ } \langle \text{ NP}_{\boxed{1}} \rangle \\
\text{COMPS } \left\langle \text{NP}_{\boxed{2}}, \begin{bmatrix} \text{VFORM min-stem} \\ \text{SUBJ } \langle \text{ NP}_{\boxed{2}} \rangle \\ \text{COMPS L} \\ \text{CONTENT } \boxed{3} \end{bmatrix} \right\rangle \oplus \text{ L} \\
\text{LOCATION } \boxed{4} \begin{bmatrix} \text{SPATIAL} \\ \text{TEMPORAL} \end{bmatrix} \\
\text{DELIMITER } \boxed{5}
\end{bmatrix} \\
\text{CONTENT} \begin{bmatrix}
\text{RELN cause} \\
\text{CAUSER } \boxed{1} \\
\text{CAUSEE } \boxed{2} \\
\text{SOA-ARG } \boxed{3} \\
\text{LOCATION } \boxed{4} \\
\text{DELIMITER } \boxed{5}
\end{bmatrix}
\end{bmatrix}
\end{bmatrix}
$$

Argument composition allows us to account for complex predicate formation in a monotonic syntax. Thus, Korean lexical and periphrastic causatives can be analyzed in HPSG as syntactically monoclausal and semantically biclausal, consistent with the various forms of evidence presented here. The features and principles of HPSG provide for a successful account of the causative data in Korean.

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